Prepared for

Renesas Electronics America, Inc.
2880 Scott Boulevard
Santa Clara, California 95050-2554

2010 ANNUAL PROGRESS REPORT

501 ELLIS STREET
MOUNTAIN VIEW, CALIFORNIA

Prepared by

Geosyntec consultants

engineers | scientists | innovators

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Project Number WR0434

14 April 2011

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14 April 2011

Ms. Alana Lee
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Subject: 2010 Annual Progress Report
501 Ellis Street, Mountain View, California

Dear Ms. Lee:

This letter transmits the subject report for the Source Control Groundwater Remediation System at 501 Ellis Street, Mountain View, California. Geosyntec Consultants prepared this report on behalf of Renesas Electronics America, Inc. If you have any questions or comments, please call either of the undersigned at (510) 836-3034.

Sincerely,

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Carolyn Kneiblher, C.HG.
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Prepared for

Renesas Electronics America
2880 Scott Boulevard
Santa Clara, California 95050-2554

2010 Annual Progress Report

501 Ellis Street
Mountain View, California

Prepared by

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Project Number: WR0434
14 April 2011

Geosyntec consultants

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1. INTRODUCTION

This Annual Progress Report summarizes facility specific environmental work and other related activities that were performed at 501 Ellis Street, Mountain View, California (the "Site") during the period 1 January through 31 December 2010. The work described in this report was performed pursuant to Sections XV A&B of CERCLA §106 Order, EPA Docket No. 91-4 (the "Order"). Geosyntec Consultants, Inc. (Geosyntec) prepared this report on behalf of Renesas Electronics America, Inc. (Renesas)[1], responding to the EPA 6 May 2005 email correspondence prescribing 2004 and future Annual Report contents [EPA, 2005]. In accordance with the EPA's email, the 2010 Annual Report Checklist is included as **Appendix A**.

1.1 Site Background

The Site is located at 501 Ellis Street and lies within the larger area bounded by Middlefield Road, Ellis Street, Whisman Road, and U.S. Highway 101 in Mountain View, California (**Figure 1**). This area includes past and present locations of semiconductor manufacturing and other industrial facilities, including the Site. In 1985, EPA identified this area as the Middlefield-Ellis-Whisman (MEW) Study Area. Numerous investigations at the properties within the MEW Study Area have been conducted, and extensive soil and groundwater remedial activities have been implemented at many of the properties.

The Site is located within the MEW Study Area and is approximately 2 acres in size. A single-story building, constructed in 1967, occupies about 28,000 square feet of the western portion of the property, and a paved open area occupies the eastern portion of the property. From 1968 to 1978, Electronic Arrays Corporation used the Site to manufacture semiconductor devices and related components. Solvents and other chemicals were used in the manufacturing process. From 1978 until April 1984, NEC operated at the Site.

In 1982, NEC initiated a groundwater monitoring and soil sampling program in response to the California Regional Water Quality Control Board (RWQCB)

[1] Formerly NEC Electronics America, Inc. (NEC) as of 15 April 2010. In this report both names (NEC and Renesas) are used in association with activities conducted at the Site.

investigation of all companies that used underground chemical tanks in their production processes prior to 1 January 1975. Between 1982 and 1990, NEC completed several site investigations that identified detectable concentrations of some volatile organic compounds (VOCs), primarily trichloroethene (TCE), in the soil and groundwater beneath the Site. Soil and groundwater remedial actions were implemented in the 1990s (Section 1.3).

1.2 Local Hydrogeology

The Site is located on a relatively flat tract of land that slopes gently to the north towards San Francisco Bay (**Figure 1**). The Bay is approximately two miles to the north, and the Santa Cruz Mountains are approximately six miles to the south.

Sediments beneath the Site are composed of varying proportions of unconsolidated to poorly consolidated gravel, sand, silt and clay typical of alluvial, estuarine, and bay deposits. The interbedded materials are generally lenticular, laterally gradational, and heterogeneous [Bechtel, 1996].

Water-bearing materials beneath the Site and larger MEW Study Area are divided into an upper aquifer zone, comprised of the A and B aquifers and their associated aquitards, and a lower aquifer zone, comprised of the C and deeper aquifers and their associated aquitards. The A aquifer at the Site is approximately 15 to 20 feet thick, extending from a depth of about 10 feet below ground surface (bgs) (elevation 35 feet above Mean Sea Level) to a maximum depth of about 30 feet bgs. From the geologic logs developed during the drilling of Site wells, the A aquifer is composed of silty sand (SM), sand (SP), and gravel (GP) with interbedded layers of silty clay (CL), silt (ML) and gravelly silt (ML).

1.3 Summary of Remedial Action

On 6 September 1991, NEC submitted to EPA a proposed final remedial design for treating VOCs in unsaturated soils located behind (east of) the Site building. Applicable treatment technologies for shallow unsaturated soils in the MEW Study Area are specified in the Record of Decision (the "ROD"), issued by EPA in May 1989, and consist of soil removal and aeration or in-situ vapor extraction. NEC elected to excavate and send offsite for treatment and disposal unsaturated soils with TCE concentrations greater than the cleanup level of 0.5 milligrams per kilogram (mg/kg).

NEC received EPA approval of its soil investigations and remediation at the Site in 1995.

In October 1997, NEC began operating a Source Control Groundwater Remediation (SCGWR) System at the Site. The SCGWR system is a groundwater extraction and treatment system that was designed to control, contain, and extract VOCs at the Site and to complement the regional groundwater remediation program for the MEW Study Area. As originally designed, the SCGWR system extracted groundwater from the A aquifer at the Site and treated the groundwater using granular activated carbon. The SCGWR system has been continuously operational since start-up in October 1997.

In September 2008, Geosyntec submitted an Optimization Evaluation for the SCGWR system on behalf of NEC (Geosyntec, 2008). The Optimization Evaluation recommended the following modifications to the SCGRW system:

- Adjust the groundwater extraction rates. Based on an evaluation of groundwater extraction rates for the Site SCGWR system, the following modifications to groundwater extraction could be implemented to improve cost effectiveness while maintaining effective groundwater capture:
    - Discontinue groundwater extraction from NEC-1AE. The pump in NEC-1AE would continue to be maintained in case extraction needs to be resumed.
    - Continue operation of NEC-27AE and NEC-28AE at extraction rates near or slightly greater than 2.0 gallons per minue (gpm). If 2.0 gpm could not be maintained in NEC-28AE, then extraction from NEC-1AE at low rates could be resumed.
    - Monitor the direction and magnitude of the regional groundwater gradient for changes that might affect groundwater capture at the Site.
- Evaluate the possibility of direct discharge of extracted groundwater to the Palo Alto Regional Water Quality Control Plant (RWQCP).

During a 3 November 2008 meeting between EPA and Geosyntec, EPA concurred with these recommendations, provided that 1) contingencies were given for restart of NEC-1AE if groundwater capture became inadequate and 2) a monitoring program for evaluating groundwater capture was implemented. A plan for implementing the

Optimization Evaluation recommendations and addressing EPA comments was provided in the 2008 Annual Progress Report (Geosyntec, 2009b). The Optimization Evaluation recommendations were implemented in 2009 and the SCGWR system operated in the optimized configuration throughout 2010.

Operation of the optimized SCGWR system includes direct discharge of extracted groundwater to the Palo Alto Regional Water Quality Control Plant (Palo Alto RWQCP) and is conducted under the requirements of a City of Mountain View Wastewater Discharge Permit, Permit ID Number 925.

Remedial actions for soil and groundwater at the Site have reduced soil concentrations of TCE to below the EPA cleanup levels, and continue to control and reduce the concentrations of VOCs in groundwater. The investigation and remediation efforts at the Site have been documented in several reports [e.g., Bechtel, 1992 and Bechtel, 1996] and are periodically updated in progress reports to EPA, in accordance with the 106 Order.

1.4 Summary of 2010 Activities

1.4.1 Field Activities

- 17 March, 14 June, 13 September, and 13 December. Locus Technologies (Locus) collected quarterly water samples from the SCGWR system effluent as required under the City of Mountain View Wastewater Discharge Permit and from well NEC-1AE as specified in the revised SCGWR extraction and monitoring program included in the 2008 Annual Progress Report.

- 25 March and 18 November. Semi-annual groundwater levels were measured in Site monitoring wells.

- 20, 21, and 22 December. Annual sampling of the Site groundwater monitoring wells.

1.4.2 Order Reporting Activities

- On 15 April 2010, Renesas submitted the 2009 Annual Progress Report to EPA.

- On 30 July 2010, Renesas submitted to the City of Mountain View a semiannual Periodic Report of Continued Compliance (PRCC) summarizing the results of self-monitoring analysis conducted during the first half of 2010.

- On 30 December 2010, Renesas submitted to the City of Mountain View a semiannual PRCC summarizing the results of self-monitoring analysis conducted during the second half of 2010.

2. GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

2.1 System Description

The SCGWR system consists of a groundwater extraction and treatment system that was designed to control, contain, and extract VOCs from the A aquifer at the Site and to complement the regional groundwater remediation program for the MEW Study Area. The SCGWR system has been continuously operational since start-up in October 1997. On 13 May 2009, the modifications to the SCGRW system recommended in the 2008 Optimization Evaluation (Section 1.3) were completed. These modifications included adjustments to groundwater extraction rates at the three extraction wells and converting the system from carbon treatment followed by discharge to Stevens Creek under an NPDES permit to direct discharge of untreated groundwater to the sanitary sewer for treatment at the Palo Alto RWQCP under a City of Mountain View wastewater discharge permit.

2.2 Extraction and Treatment System Operations and Maintenance

Performance of the SCGWR system, including monthly average flow rates, extraction totals, and VOC mass removal, is summarized in **Table 1**. As of 30 December 2010, 31,121,250 gallons of water have been treated since startup of the SCGWR system on 16 October 1997. The average daily processing rate has been 6,609 gallons per day (gpd) or 4.6 gallons per minute (gpm). Since system optimization in 2009, the average daily processing rate has been 3.7 gpm.

Approximately 1.95 pounds of VOCs were removed by the SCGWR system in 2010. The total mass of VOCs removed by the treatment system from start-up through 30 December 2010 is approximately 40.9 pounds. **Figure 2** shows the cumulative groundwater extracted and mass of VOCs removed since startup.

2.3 Hydraulic Control and Capture Zone Analysis

Site monitoring and extraction wells are completed within the A aquifer (**Table 2**). Depth to groundwater in the monitoring wells ranged from approximately 7 to 15 feet below top of casing (btoc) during the March monitoring period and approximately 8 to 15 feet btoc during the November monitoring period (**Tables 3 and 4**). A hydrograph

of groundwater elevations in selected monitoring wells across the Site is shown in **Figure 3**.

2.3.1 Methodology

Capture of groundwater beneath the Site was estimated using two methods. The first method is the analytical solution of Javandel and Tsang (1987), which consists of calculating a stagnation point and capture zone width, followed by projection of streamlines perpendicular to groundwater contours. The 2010 capture zone calculations using this approach are provided as **Appendix B**.

The second method for estimating groundwater capture uses a steady-state numerical simulation of groundwater flow incorporating particle tracking. Numerical simulations were performed using the computer program Visual MODFLOW Professional, Version 4.3®.

Other techniques commonly used to evaluate the performance of groundwater extraction systems, such as contaminant concentration trends in up- and downgradient monitoring wells, or tracer tests, are not applicable to the Site due to the position of 501 Ellis Street relative to the MEW regional plume and contributions of similar contaminants to groundwater from offsite sources.

2.3.2 Estimated Capture Zones for 2010

Numerical Model Development

The SCGWR system is designed to provide complete containment of the A aquifer groundwater directly beneath the Site. The Site conceptual model treats the interlayered heterogeneities of the A aquifer as a single unit extending from 10 to 30 ft bgs. The unit is assumed to have a uniform transmissivity of 91 ft^2/day, estimated from pumping tests conducted on wells NEC-12A and NEC-22A during groundwater extraction system design [Bechtel, 1996 and Geosyntec, 2001] and confirmed using the specific capacity of the extraction wells [Driscoll, 1986]. The transmissivity was incorporated into the numerical model using an aquifer thickness of 20 ft, resulting in a hydraulic conductivity of 4.6 ft/day (1.6×10^{-3} cm/sec). This value is consistent with the average hydraulic conductivity of 2.3 ft/day (8.1×10^{-4} cm/sec) estimated from slug tests conducted in the vicinity of the Site [Bechtel, 1989]. The value is also within the range

of regional A aquifer hydraulic conductivities (0.35 ft/day to 2,050 ft/day), although it should be noted that based on the regional data the A aquifer is highly heterogeneous.

For the purpose of the Site numerical model, a uniform horizontal gradient with a direction of N28°W and a magnitude of 0.008 ft/ft (42.2 ft/mile) is assumed for the A aquifer groundwater beneath the Site. The horizontal gradient was estimated based on offsite groundwater elevations and regional potentiometric surface maps developed for the MEW Study Area [Weiss, 2004], and is consistent with previous estimates [Bechtel, 1989; Bechtel, 1996]. However, the observed groundwater gradient direction beneath the Site does not appear to be uniform based on groundwater elevations in Site monitoring wells. Due to the position of the Site relative to the MEW Study Area and the active groundwater extraction systems onsite and to the west of the Site, the gradient appears to shift to the west near the downgradient portion of the Site.

For the purpose of the Site numerical model, it is also assumed that there is no contribution of groundwater from the underlying B1 aquifer into the A aquifer. This assumption is consistent with observations from B1 aquifer wells that showed no response when monitored during onsite pumping tests conducted in the A aquifer [Bechtel, 1996].

The model domain is 2,500 feet wide by 2,500 feet long, with 20 feet by 20 feet grid blocks. The numerical simulation has one vertical layer with a 30 foot thickness. The upper 10 feet of the vertical layer is unsaturated. The upper and lower boundaries of the vertical layer are sloped in a direction consistent with the groundwater gradient to maintain a uniform aquifer thickness. Boundary conditions for the numerical model are based on the Site conceptual model described below. Given the large number of groundwater wells currently operating within the MEW Study Area, only groundwater extraction rates and elevation data within the immediate vicinity of the Site are used to evaluate groundwater capture.

2010 Groundwater Capture

Based on the A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day described above, the coupled analytical solution using the Javandel and Tsang method and potentiometric surface evaluation shows complete capture of the A aquifer groundwater beneath the Site during the groundwater elevation measurements conducted in March and November 2010 (**Figures 4 and 5**). The calculation parameters used to estimate the stagnation point and capture zone width for these evaluations are provided in **Appendix B**.

Particle path lines indicating simulated groundwater capture in the A aquifer beneath the Site based on February, May, August, and November 2010 groundwater extraction rates are shown in **Figures 6** through **9**, respectively. Although groundwater elevation contours are not shown in these figures, the groundwater elevations predicted by the numerical solution are in generally good agreement with the groundwater elevation contour maps developed based on observed water levels in Site monitoring wells (**Figures 4 and 5**). Given the A aquifer thickness and bulk hydraulic conductivity estimated as part of the Site conceptual model, the numerically simulated capture zones demonstrate complete capture of A aquifer groundwater beneath the Site.

2.3.3 Horizontal and Vertical Gradients

Groundwater elevation contour maps for March and November 2010 (**Figures 4 and 5**) indicate an overall north-northwest groundwater flow direction. The groundwater elevation contours steepen around the operating extraction wells, indicating the pumping cones of depression.

The current Site monitoring network consists of A aquifer monitoring wells. Depth to groundwater measurements are only collected for A aquifer monitoring wells at the Site and vertical gradients between deeper groundwater zones are not evaluated.

2.4 Analytical Results

Table 5 summarizes the analytical data for groundwater samples collected in December 2010 from the Site monitoring wells and extraction wells. Historical groundwater analytical data is included in the CD provided with this report (provided to EPA only). TCE isoconcentration contours for the December 2010 sampling event are shown in **Figure 10**. Time-series plots of TCE concentration for select NEC wells are provided in **Figures 11** through **13**. Laboratory analytical reports (provided to EPA only) are included as **Appendix C**. The Quality Assurance Report for data collected during 2010 is provided as **Appendix D** and quality control results are summarized in **Tables D-1, D-2, and D-3**.

Analytical Results Summary

Seven chlorinated VOCs have been detected in one or more Site monitoring wells. TCE and cis-1,2-dichloroethene (cis-1,2-DCE) are the only compounds detected in all of the wells that are sampled at the Site. The highest TCE concentration detected

during the December 2010 sampling event was 130 micrograms per liter (µg/L) in monitoring well NEC-26A. This represents a reduction from the highest TCE concentration detected in 2009, which was 180 µg/L at NEC-26A.

The highest TCE concentrations have historically been detected in the groundwater samples collected from monitoring well NEC-1A (**Figure 11**). Prior to November 2000, the TCE concentrations in NEC-1A varied cyclically, with higher concentrations (above 1,000 µg/L) detected in in November and lower concentrations (below 1,000 µg/L) detected in May). Since May 2000, TCE concentrations in NEC-1A have been below 500 µg/L, with concentrations at or below 150 µg/L since November 2007. During the December 2010 sampling event, the concentration of TCE in monitoring well NEC-1A was 83 µg/L.

As part of the revised SCGWR extraction and monitoring program, quarterly groundwater samples were collected from the former extraction well NEC-1AE and analyzed for VOCs. Results of the quarterly groundwater samples are summarized in **Table 6**. Since shutting down NEC-1AE in May 2009, concentrations of TCE have decreased from 150 µg/L to less than 60 µg/L. Concentration rebound in the vicinity of NEC-1AE has not occurred to date and the modified groundwater extraction regime may be contributing to the reduced concentrations near NEC-1AE (**Figure 12**). In contrast, concentrations of cis-1,2-DCE at NEC-1AE have increased slightly, from 19 µg/L to 27 µg/L. Cis-1-2-DCE is a reductive dechlorination daughter product of TCE, and the observation that cis-1-2-DCE concentrations are stable or increasing relative to TCE indicates that ongoing natural attenuation processes at the Site may occur with increased efficiency in the absence of groundwater extraction.

VOC concentration trends at all Site monitoring wells were evaluated using Mann-Kendall trend analysis, a non-parametric trend test that uses only the relative magnitudes of the data rather than their measured values to evaluate trends. TCE, cis-1,2-dichloroethene, and vinyl chloride concentration trends at both the 80% and 90% confidence level based on the previous 10 years of monitoring data are summarized in **Table E-1** of **Appendix E**. **Appendix E** also includes a summary of the Mann-Kendal analysis conducted at each individual well.

Of the 20 monitoring and extraction wells at the Site, 17 wells exhibit either stable or decreasing TCE concentration trends at a 90% confidence level (**Figure 14**). Of the three wells showing increasing TCE concentration trends, NEC20A is located upgradient of the Site and increasing concentrations at that well may indicate an

upgradient offsite source. The other wells showing increasing trends are NEC7A, located crossgradient to upgradient of the Site and NEC-PZ1A, located adjacent to the downgradient groundwater extraction wells NEC-27AE and NEC-28AE and within their estimated capture zone.

Data Quality Assurance Summary

Quality control results are summarized in **Tables D-1, D-2, and D-3**.

- Percent recoveries and relative percent differences (RPD) for both laboratory control spikes and matrix spikes were within project goals.
- No VOCs were detected in the field or laboratory blanks.
- TCE and cis-1,2-DCE were detected at concentrations of 1.8 μg/L and 0.9 μg/L in the trip blank.
- Several VOCs were detected in the equipment blank (**Table D-2**).
- A blind duplicate sample was collected at monitoring well NEC-PZ3A. RPDs for all detected VOCs were within project goals.

Geosyntec will work with analytical laboratory and groundwater sampling subcontractor during the 2011 annual groundwater monitoring event to ensure that VOCs are not detected in any of the quality assurance blanks.

3. OTHER 2010 ACTIVITIES

- On 26 October 2010, Renesas participated in an MEW All Parties meeting to discuss the Vapor Intrusion (VI) remedy at the MEW Study Area.
- On 27 October 2010, Renesas participated in an MEW All Parties meeting to discuss the site-wide Groundwater Feasibility Study (GWFS) being prepared by EPA for MEW.
- On 14 December 2010, Renesas participated in an MEW All Parties meeting to discuss the site-wide GWFS prepared for MEW.

4. PROBLEMS ENCOUNTERED

No problems related to operation of the SCGWR system were encountered in 2010.

5. TECHNICAL ASSESSMENT

Is the remedy functioning as intended? Yes, the SCGWR system is effectively extracting and containing groundwater from the Site.

Are capture zones adequate? Converging lines of evidence indicate the capture zones at the Site are adequate for the A aquifer at the Site. Capture zones were estimated semi-annually (corresponding to the depth to groundwater collection events) using the Javandel and Tsang methodology (**Figures 4 and 5**) and quarterly using a site-specific numerical simulation (**Figures 6 through 9**). The simulation results are in good agreement with the potentiometric surfaces based on depth to groundwater measurements and the capture zones show complete capture of the A aquifer groundwater beneath the Site.

Are vertical gradients appropriate? Not applicable to the Site.

Are VOC concentrations decreasing over time? Yes, concentrations are decreasing over time. As shown in **Figure 11**, TCE concentrations in monitoring well NEC-1A have decreased from a maximum concentration of 2,400 μg/L in November 1991 to 83 μg/L during the December 2010 monitoring event. NEC-1AE ceased pumping in 2009 and concentrations of TCE in that well have declined from 150 μg/L to less than 60 μg/L.. Mann-Kendall trend analyses of Site monitoring and extraction wells indicate stable or decreasing TCE concentration trends. The three exceptions are located either upgradient to crossgradient of the Site (NEC-20A and NEC-7A) or are located near the two downgradient extraction wells (NEC-PZ1A).

6. CONCLUSIONS AND RECOMMENDATIONS

During 2010, the SCGWR system removed a total of 1.95 pounds of VOCs. No problems related to system operation were noted in 2010.

Converging lines of evidence indicate the capture zones at the Site are adequate for the A aquifer at the Site. The capture zones for the semi-annual depth to groundwater measuring events were estimated using the Javandel and Tsang methodology. Capture zones were also estimated quarterly based on groundwater extraction rates using a site-specific numerical simulation. The numerical simulation results are in good agreement with the potentiometric surfaces based on depth to groundwater measurements and the capture zones show complete capture of the A aquifer groundwater beneath the Site.

Concentrations of TCE in the Site monitoring wells have decreased since the implementation of the SCGWR system. In monitoring well NEC-1A, the TCE concentration has decreased from a maximum concentration of 2,400 μg/L in November 1991 to 83 μg/L in December 2010. Trend analyses indicate stable or decreasing concentrations in all Site wells, except for wells located upgradient or crossgradient of the Site, or near the two downgradient extraction wells.

The modifications to the SCGWR system recommended in the 2008 Optimization Evaluation and completed in May 2009 have not adversely impacted the groundwater remedy performance. In addition, concentration rebound has not been observed at extraction well NEC-1AE since it was shut down as part of the May 2009 optimization activities. Instead, TCE concentrations at NEC-1AE decreased from 150 μg/L before the optimization to 57 μg/L immediately following shutdown and have not increased through December 2010 (**Table 6, Figure 13**).

7. FOLLOW-UP ACTIONS

7.1 Vapor Intrusion Remedial Investigation/Feasibility Study

On 8 March 2006, EPA sent a letter to the MEW Companies, including NASA and the Navy, requesting a Supplemental Remedial Investigation/Feasibility Study (RI/FS) Work Plan and a RI/FS Report for vapor intrusion [EPA, 2006]. The RI/FS Work Plan was submitted to EPA on 12 May 2006 [Locus, 2006a]. By e-mail, on 16 June 2006, EPA conditionally approved the RI/FS Work Plan.

The Final Supplemental Feasibility Study for Vapor Intrusion Pathway for the MEW Study Area, which was issued by Haley & Aldrich and Locus Technologies on 29 June 2009 (Haley & Aldrich and Locus Technologies, 2009). EPA issued its Proposed Plan for the Vapor Intrusion Pathway at the MEW Study Area on 9 July 2009 (EPA, 2009a) and the public comment period for the Proposed Plan began on 10 July 2009. Based on comments received during the public comment period, EPA issued Potential Changes to the Proposed Vapor Intrusion Remedy on 20 August 2009 (EPA, 2009b). The public comment period for the Proposed Plan was closed on 7 November 2009. On 16 August 2010, EPA issued its Record of Decision Amendment (ROD) for the Vapor Intrusion Pathway for the MEW Study Area 9 (EPA, 2010). The ROD Amendment includes responses to public comments. Implementation of the VI remedy is expected to begin in 2011.

7.2 Groundwater Focused Feasibility Study

A Focused Feasibility Study (FFS) Work Plan for groundwater was submitted to the EPA on 31 July 2006 [Northgate, 2006]. The EPA provided comments on the FFS Work Plan on 26 July 2007 and conditionally approved the FFS Work Plan on 27 September 2007. Responses to EPA's comments on the FFS Work Plan were submitted on 17 January 2008. On 14 April 2008, Volume 1 of the Draft Site-Wide Focused Feasibility Study and Technical Impracticability Evaluation (FFS/TI) Report was submitted to EPA [Northgate, 2008]. In a letter dated 5 June 2008, EPA stated that the Draft FFS/TI Report was incomplete and inadequate and requested an optimization evaluation for the MEW Study Area be completed as a necessary first step before resumption of the FFS process. Facility-specific and regional optimization evaluations for the MEW Study Area were submitted to EPA on 3 September 2008. In a follow up email dated 5 October 2010, EPA informed the MEW parties that it intends to prepare

the GWFS for MEW with input from the parties. Preparation of the GWFS is ongoing and expected to continue through 2011.

8. UPCOMING WORK IN 2011 AND PLANNED FUTURE ACTIVITIES

Upcoming work planned in 2011 is summarized in the table below. As part of the 2011 scope of work for the Site, Renesas is planning to prepare and submit a proposal for a trial shutdown of the 501 Ellis Street SCGWR system in May 2011. The objectives of the trial shutdown would be to assess plume stability in the absence of groundwater extraction and evaluate whether monitored natural attenuation (MNA) is a viable alternative remedy for the Site.

January	• No work planned other than routine SCGWR O&M
February	• No work planned other than routine SCGWR O&M
March	• Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE • Semi-annual groundwater level measurements
April	• Submit Annual Status Report to USEPA
May	• Submit proposal for Trial System Shutdown
June	• Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE
July	• Implement Trial System Shutdown
August	• Trial System Shutdown Monitoring
September	• Trial System Shutdown Monitoring
October	• Trial System Shutdown Monitoring
November	• Semi-annual groundwater level measurements • Annual groundwater sampling • Trial System Shutdown Monitoring
December	• Trial System Shutdown Monitoring

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TABLES

Table 1
SCGWR System Performance Summary
501 Ellis Street, Mountain View, California

Discharge Period	Primary adsorber replaced	Discharge Days	Total Discharge gallons	Average Rate gpd	Influent VOCs µg/L	Effluent VOCs µg/L	VOCs Removed lbs
Startup Oct 16, 1997		0	0	NA	NA	NA	0.00
Oct 16- Nov 13, 1997		27	109,340	4,050	152	0	0.14
Nov 14- Dec 17, 1997		34	153,010	4,500	202	0	0.26
Dec 18, 1997-Jan 15, 1998		29	152,110	5,245	134	0	0.17
Jan 16-Feb 19, 1998		35	194,870	5,568	138.1	0	0.22
Feb 20-Mar 19, 1998		28	149,510	5,340	144	1.4	0.18
Mar 20-Apr 22, 1998	3/23/1998	34	157,430	4,630	137.4	0	0.18
Apr 23-May 28, 1998		36	104,370	2,899	69.9	0	0.06
May 29-June 23, 1998		25	95,110	3,804	110	15.28	0.08
June 24-July 22, 1998	7/14/1998	29	145,370	5,013	83	0	0.10
July 23-Aug 20, 1998		29	118,290	4,107	60.8	0	0.06
Aug 21-Sep 23, 1998		34	129,190	3,791	196.6	1.1	0.21
Sep 24-Oct 28, 1998	10/8/1998	35	277,800	7,919	125.3	0	0.29
Oct 29-Nov 30, 1998		32	283,740	8,890	110	0	0.26
Dec 1-Dec 15, 1998	12/21/1998	15	120,120	7,959	146.2	0	0.15
Dec 16, 1998 - Jan 27, 1999	1/8/1999	42	326,540	7,777	168.7	0	0.46
Jan 28 - Feb 24, 1999		27	233,490	8,721	167.9	0	0.33
Feb 25 - Mar 24, 1999	3/5/1999	27	242,060	8,956	195	0	0.39
Mar 25 - Apr 28, 1999	4/12/1999	35	289,730	8,253	159.4	0	0.39
Apr 21 - May 26, 1999		30	237,970	7,953	202.1	0	0.40
May 27 - June 23, 1999	6/8/1999	26	235,210	9,040	182.4	0	0.36
June 23 - July 28, 1999		35	292,100	8,325	178.4	2.8	0.43
July 29 - Aug 25, 1999	8/9/1999	28	228,510	8,209	184	3.3	0.34
Aug 26 - Sep 22, 1999	9/16/1999	28	160,730	5,730	57.9	0	0.08
Sep 23 - Oct 27, 1999		36	224,710	6,242	184	3.7	0.34
Oct 28 - Nov 23, 1999	11/12/1999	26	210,000	8,024	180.4	0	0.32
Nov 24 - Dec 22, 1999		29	222,120	7,696	231.9	2.2	0.43
Dec 23, 1999 - Jan 26, 2000	12/23/1999	35	275,070	7,872	201.3	1.2	0.46
Jan 27 - Feb 23, 2000	2/7/2000	28	212,950	7,608	208.6	8.8	0.35
Feb 24 - Mar 22, 2000	3/11/2000 and 3/20/2000	27	202,020	7,493	210	0	0.35
Mar 23 - Apr 26, 2000	4/17/2000	35	260,110	7,432	186.5	0	0.40
Apr 27 - May 31, 2000	5/26/2000	35	252,920	7,226	201.5	0	0.43
June 1 - June 28, 2000	6/26/2000	28	190,590	6,807	170.1	0	0.27
June 29 - July 26, 2000		28	187,760	6,706	212.8	0	0.33
July 27 - Aug 23, 2000	9/21/2000	28	183,790	6,564	204.7	0	0.31
Aug 24 - Sep 27, 2000		35	229,820	6,566	194.9	0	0.37
Sep 28 - Oct 26, 2000	10/6/2000	29	175,300	6,325	138.5	0	0.20
Oct 27 - Nov 22, 2000	11/17/2000	27	169,590	6,014	213.0	202.7	0.01
Nov 23 - Dec 20, 2000		28	141,930	5,046	159.7	0	0.19
Dec 21, 2000 - Jan 24, 2001	1/19/2001	35	207,970	6,498	213.4	0	0.37
Jan 25 - Feb 28, 2001	2/19/2001	35	215,600	6,151	178.3	0	0.32
Mar 1 - Mar 28, 2001		28	176,650	6,314	159.4	0	0.23
Mar 29 - Apr 25, 2001	4/10/2001	28	155,570	5,504	181.5	0	0.24
Apr 26 - May 30, 2001	5/30/2001	35	192,810	5,382	164.4	0	0.26
May 31 - June 27, 2001		28	136,610	5,013	202	0	0.23
June 28 - July 25, 2001	7/2/2001 and 7/16/2001	28	173,810	6,439	226.9	0	0.33
July 26 - Aug 22, 2001	8/14/2001	28	187,720	6,697	237.4	0	0.37
Aug 23 - Sep 26, 2001	9/19/2001	35	232,980	6,668	217.4	0	0.42
Sep 27, 2001 - Oct 24, 2001		28	186,960	6,672	225.4	0	0.35
Oct 25, 2001 - Nov 28, 2001	10/29/2001	35	214,470	6,125	223.8	0	0.40
Nov 29, 2001 - Dec 19, 2001	12/11/2001	21	117,130	5,580	176.6	0	0.17
Dec 20, 2001 - Jan 16, 2002		28	163,130	5,549	210.7	0	0.29

Table 1
SCGWR System Performance Summary
501 Ellis Street, Mountain View, California

Discharge Period	Primary adsorber replaced	Discharge Days	Total Discharge gallons	Average Rate gpd	Influent VOCs µg/L	Effluent VOCs µg/L	VOCs Removed lbs
Jan 17, 2002 - Feb 25, 2002	2/19/2002	40	215,500	5,210	159.1	0	0.29
Feb 26, 2002 - Mar 20, 2002		23	136,160	4,643	238.4	0	0.27
Mar 21, 2002 - Apr 15, 2002		26	94,470	4,544	140.5	0	0.11
Apr 16, 2002 - May 22, 2002	4/24/2002	37	175,070	5,315	202.7	0	0.30
May 23, 2002 - June 19, 2002	6/4/2002	28	201,600	7,156	207.4	0	0.35
June 20, 2002 - July 10, 2002		21	255,090	9,769	202	0	0.43
July 11, 2002 - Aug 21, 2002	7/29/2002	42	193,600	6,518	141.8	0	0.23
Aug 22, 2002 - Sep 18, 2002		27	143,530	4,870	201.2	0	0.24
Sep 19, 2002 - Oct 17, 2002	10/1/2002	28	175,390	5,770	203.8	0	0.30
Oct 18, 2002 - Nov 20, 2002		33	250,780	6,920	201	0	0.42
Nov 21, 2002 - Dec 18, 2002	11/25/2002	27	184,290	7,009	137.2	0	0.21
Dec 19, 2002 - Jan 22, 2003		35	220,900	6,330	189.3	0	0.35
Jan 23, 2003 - Feb 19, 2003	2/10/2003	28	166,230	6,183	226.7	0	0.31
Feb 20, 2003 - Mar 19, 2003		28	179,360	6,090	166.3	0	0.25
Mar 20, 2003 - Apr 28, 2003	4/1/2003	39	207,300	5,504	146.7	0	0.25
Apr 29, 2003 - May 19, 2003	5/19/2003	21	131,770	6,315	172.7	0	0.19
May 20, 2003 - June 30, 2003		41	227,380	5,732	160	0	0.30
July 1, 2003 - Aug 5, 2003	7/8/2003	36	230,950	6,186	186	0	0.36
Aug 6, 2003 - Sep 3, 2003		28	160,410	5,960	143.4	0	0.19
Sep 4, 2003 - Sep 30, 2003	9/9/2003	26	166,270	6,162	195.7	0	0.27
Oct 1, 2003 - Nov 5, 2003		35	238,150	6,608	186	0	0.37
Nov 6, 2003 - Dec 5, 2003	11/18/2003	29	186,150	6,225	200.4	0	0.31
Dec 6, 2003 - Dec 31, 2003		25	164,280	6,315	201.4	0	0.28
Jan 1, 2004 - Jan 28, 2004	1/12/2004	27	168,040	6,235	199.1	0	0.28
Jan 29, 2004 - Feb 27, 2004		29	183,810	6,169	167.1	0	0.26
Feb 28, 2004 - Mar 29, 2004	3/8/2004	30	191,270	6,587	168.7	0	0.27
Mar. 30, 2004 - Apr. 22, 2004		23	149,410	6,546	173.8	0	0.22
Apr. 23, 2004 - May 19, 2004	4/19/2004	26	174,000	6,500	168.6	0	0.24
May 20, 2004 - June 21, 2004	6/1/2004	32	201,810	6,361	156.3	0	0.26
June 22, 2004 - July 21, 2004		30	171,870	5,729	144.8	0	0.21
July 22, 2004 - Aug 17, 2004	8/2/2004	27	145,690	5,396	167.5	0	0.20
Aug 18, 2004 - Sep 22, 2004	9/20/2004	36	162,960	4,527	173.3	0	0.24
Sep 23, 2004 - Oct 20, 2004		28	145,290	5,189	131.9	0	0.16
Oct 21, 2004 - Nov 15, 2004	11/3/2004	26	182,140	7,005	152.9	0	0.23
Nov 16, 2004 - Dec 22, 2004	12/13/2004	37	257,700	6,965	150.5	0	0.32
Dec 23, 2004 - Jan 19, 2005		28	205,800	7,350	144.9	0	0.25
Jan 20, 2005 - Feb 15, 2005	1/24/2005	27	185,870	6,884	147.9	0	0.23
Feb 16, 2005 - Mar 28, 2005	3/14/2005	41	283,820	6,922	149.1	0	0.35
Mar 29, 2005 - Apr 20, 2005	4/14/2005	23	153,380	6,669	150.6	0	0.19
Apr 21, 2005 - May 25, 2005	5/19/2005	35	255,110	7,289	144.2	0	0.31
May 26, 2005 - June 27, 2005		33	239,120	7,246	149.1	0	0.30
June 28, 2005 - July 25 2005		28	184,260	6,581	153.7	0	0.24
July 26, 2005 - Aug 15, 2005		21	152,620	7,268	139.2	0	0.18
Aug 16, 2005 - Oct 3, 2005	8/17/2005 9/15/2005	49	378,200	7,718	163.5	0	0.52
Oct 4, 2005 - Oct 24, 2005	10/18/2005	21	160,050	7,621	149.8	0	0.20
Oct 25, 2005 - Nov 21, 2005		28	208,170	7,435	162.7	0	0.28
Nov 22, 2005 - Dec 30, 2005		39	302,470	7,756	158.5	0	0.40

Table 1
SCGWR System Performance Summary
501 Ellis Street, Mountain View, California

Discharge Period	Primary adsorber replaced	Discharge Days	Total Discharge gallons	Average Rate gpd	Influent VOCs µg/L	Effluent VOCs µg/L	VOCs Removed lbs
Dec 31, 2005 - Jan 30, 2006	1/5/2006	31	237,010	7,645	143.1	0	0.28
Jan 31, 2006 - Feb 27, 2006	2/6/2006	28	205,260	7,331	134.3	0	0.23
Feb 28, 2006 - Apr 3, 2006	3/13/2006	35	246,150	7,033	153.9	0	0.32
Apr 4, 2006 - Apr 24, 2006		21	150,040	7,145	145.6	0	0.18
Apr 25, 2006 - May 30, 2006		36	252,130	7,004	142.8	0	0.30
May 31, 2006 - June 30, 2006	6/5/2006	31	205,290	6,622	156	0	0.27
July 1, 2006 - Aug 7, 2006	7/12/2006	37	247,740	6,696	129.4	0	0.27
Aug 8, 2006 - Sep 5, 2006	8/31/2006	28	183,410	6,550	128.6	0	0.20
Sep 6, 2006 - Oct 2, 2006		26	182,180	7,007	158.6	0	0.24
Oct 3, 2006 - Nov 6, 2006		34	232,190	6,829	145.7	0	0.28
Nov 7, 2006 - Dec 4, 2006	11/9/2006	27	179,870	6,662	170.9	0	0.26
Dec 5, 2006 - Jan 2, 2007	12/14/2006	28	181,650	6,488	174.5	0	0.26
Jan 3, 2007 - Feb 1, 2007	2/1/2007	29	193,140	6,660	146	0	0.24
Feb 2, 2007 - Mar 5, 2007		31	200,650	6,473	135.2	0	0.23
Mar 6, 2007 - Apr 2, 2007		27	176,910	6,552	134.9	0	0.20
Apr 2, 2007 - May 7, 2007	4/24/2007	35	235,030	6,715	148	0	0.29
May 7, 2007 - June 4, 2007	5/23/2007	28	200,670	7,167	145.8	0	0.24
June 4, 2007 - June 29, 2007		25	180,590	7,224	134.5	0	0.20
June 29, 2007 - July 30, 2007	7/5/2007	32	230,300	7,197	127.6	0	0.25
July 30, 2007 - Sept 4, 2007		36	281,730	7,826	138	0	0.32
Sept 4,2007 - Oct 1, 2007	9/13/2007	27	184,930	6,849	164.8	0	0.25
Oct 2, 2007 - Oct 29, 2007	10/9/2007	28	220,880	7,889	127.4	0	0.23
Oct 30, 2007 - Nov 26, 2007	11/19/2007	28	221,870	7,924	115.5	0	0.21
Nov 27, 2007 - Dec 31, 2007		35	282,300	8,066	145.8	0	0.34
Jan 1, 2008 - Jan 28, 2008	1/22/2008	28	204,940	7,319	156.9	0	0.27
Jan 29, 2008 - Feb 25, 2008	2/19/2008	28	214,970	7,678	141.8	0	0.25
Feb 26, 2008 - Mar 31, 2008		35	270,880	7,739	137.3	0	0.31
Apr 1, 2008 - Apr 28, 2008	4/3/2008	27	215,770	7,991	144.9	0	0.26
Apr 29, 2008 - May 27, 2008		28	233,230	8,330	148.9	0	0.29
May 28, 2008 - June 30, 2008	6/9/2008	33	215,260	6,523	135.8	0	0.24
July 1, 2008 - July 28, 2008		27	213,290	7,900	145.5	0	0.26
July 29, 2008 - Sep 2, 2008		35	271,770	7,765	157.2	0	0.36
Sep 3, 2008 - Sep 29, 2008		26	206,440	7,940	147.5	0	0.25
Sep 30, 2008 - Nov 3, 2008	10/9/2008	34	255,440	7,513	145.6	0	0.31
Nov 4, 2008 - Dec 1, 2008	11/17/2008	27	201,980	7,481	160.9	0	0.27
Dec 2, 2008 - Dec 29, 2008		27	199,220	7,379	146.5	0	0.24
Dec 30, 2008 - Feb 2, 2009	1/5/2009	35	262,400	7,497	144.5	0	0.32
Feb 3, 2009 - March 2, 2009	2/17/2009	28	208,760	7,456	132	0	0.23
March 3, 2009 - April 6, 2009		35	261,780	7,479	123.5	0	0.27
Apr 7, 2009 - May 4, 2009	4/8/2009	28	202,690	7,239	133.5	0	0.23
May 5, 2009 - Jun 1, 2009		28	172,870	6,174	133.4	0	0.19
Jun 2, 2009 - Jun 29,2009		28	150,880	5,389	--*	98.6*	0.12
Jun 30, 2009 - Oct 5,2009		98	538,960	5,500	--	114.2	0.51
Oct 6, 2009 - Dec 31,2009		87	483,970	5,563	--	119.6	0.48
Jan 1, 2010 - March 17, 2010		76	412,870	5,433	--	119.0	0.41
March 18, 2010 - June 30, 2010		105	577,330	5,498	--	110.6	0.53
July 1, 2010 - Sep 14, 2010		76	412,240	5,424	--	129.3	0.44
Sep 14, 2010 - Dec 30, 2010		108	537,210	4,974	--	126.3	0.57
TOTALS		4,783	31,121,250	6,609	--	--	40.93

*Note:

Beginning 13 May 2009, extracted groundwater is discharged without pre-treatment to the sanitary sewer under City of Mountain View Wastewater Discharge Permit Number 925. At this time, collection of influent samples was discontinued. Quarterly effluent samples are collected as required by the City of Mountain View Wastewater Discharge Permit. VOC recovery is estimated quarterly based on effluent concentration and total discharge.

Table 2
Summary of Extraction Well and Monitoring Well Construction Details
501 Ellis Street, Mountain View, California

Well ID	Date Installed	Reference Elevation Top of PVC (Feet)	Well Diameter [1] (inches)	Screen Slot Size [1] (inches)	Depth of Screened Interval (feet)	Aquifer Zone
Extraction Wells						
NEC27AE	May-97	43.73	6	0.02	12.7-27.7	A
NEC1AE [2]	May-97	43.90	6	0.02	12.8-27.8	A
NEC28AE	Apr-02	42.70	6	0.02	9-29	A
Monitoring Wells						
NEC-1A	Sep-82	44.41	2	0.01	5-25	A
NEC-2A	Sep-82	45.02	2	0.01	5-25.5	A
NEC-7A	Oct-83	43.61	2	0.02	6-26.5	A
NEC-8A	Oct-83	42.24	2	0.02	5-25	A
NEC-9A	Oct-83	42.97	2	0.02	5-30	A
NEC-10A	Aug-84	39.72	2	0.02	10-30	A
NEC-11A	Aug-84	46.06	2	0.02	10-30	A
NEC-3A	Oct-85	43.76	4	0.02	24.95-28.72	A
NEC-12A	Oct-85	44.24	4	0.02	18.90-28.32	A
NEC-21A	Dec-88	44.06	4	0.02	26-28	A
NEC22A	May-89	43.17	4	0.02	25-27	A
NEC-23A	May-89	43.77	4	0.02	26-28	A
NEC-24A	Dec-91	44.50	4	0.02	15.8-25.8	A
NEC-25A	Mar-96	42.30	4	0.02	17.19-27.19	A
NEC-26A	Mar-96	43.65	4	0.02	28.24-33.24	A
NEC-PZ-1A	Apr-99	42.47	2	0.02	11-16	A
NEC-PZ-2A	Apr-99	43.02	2	0.02	9-14	A
NEC-PZ-3A	Apr-99	43.16	2	0.02	8-13	A

Notes:

[1] Well diameters and screen slot sizes for wells constructed in the 1980's obtained from the table "Summary of NEC Monitoring Well Construction"

[2] Ceased groundwater extraction from well on 13 May 2009. Resuming extraction is contingent upon maintaining sufficient capture with the remaining two wells.

Table 3
Groundwater Levels - March 2010
501 Ellis Street, Mountain View, California

Well Number	Reference Elevation (top of PVC) (feet)	Depth to Water (top of PVC) (feet)	Groundwater Elevation (feet)	Aquifer
NEC1A	44.47	8.42	36.05	A
NEC1AE	43.90	8.49	35.41	A
NEC3A	43.76	7.47	36.29	A
NEC7A	43.80	10.06	33.74	A
NEC8A	42.29	9.48	32.81	A
NEC9A	43.14	7.86	35.28	A
NEC10A	39.43	6.97	32.46	A
NEC11A	45.97	9.54	36.43	A
NEC12A	44.24	9.01	35.23	A
NEC20A	46.62	8.67	37.95	A
NEC21A	44.06	7.94	36.12	A
NEC22AE	43.17	8.57	34.60	A
NEC23A	43.77	9.02	34.75	A
NEC24A	44.50	9.63	34.87	A
NEC25A	42.30	8.73	33.57	A
NEC26A	43.65	8.48	35.17	A
NEC27AE	43.73	15.03	28.70	A
NEC28AE	42.27	10.84	31.43	A
NEC-PZ-1A	42.47	9.64	32.83	A
NEC-PZ-2A	43.02	9.77	33.25	A
NEC-PZ-3A	43.16	9.16	34.00	A
29A[1]	46.08	11.10	34.98	A
32A[1]	45.06	10.85	34.21	A
119A[1]	45.95	11.80	34.15	A
153A[1]	45.72	10.80	34.92	A
158A[1]	48.09	10.55	37.54	A

[1] Regional Groundwater Remediation Program (RGRP) monitoring wells.

Table 4
Groundwater Levels - November 2010
501 Ellis Street, Mountain View, California

Well Number	Reference Elevation (top of PVC) (feet)	Depth to Water (top of PVC) (feet)	Groundwater Elevation (feet)	Aquifer
NEC1A	44.47	9.03	35.44	A
NEC1AE	43.90	9.12	34.78	A
NEC3A	43.76	7.60	36.16	A
NEC7A	43.80	10.69	33.11	A
NEC8A	42.29	10.11	32.18	A
NEC9A	43.14	8.38	34.76	A
NEC10A	39.43	7.79	31.64	A
NEC11A	45.97	10.12	35.85	A
NEC12A	44.24	9.90	34.34	A
NEC20A	46.62	9.14	37.48	A
NEC21A	44.06	8.43	35.63	A
NEC22AE	43.17	9.17	34.00	A
NEC23A	43.77	9.54	34.23	A
NEC24A	44.50	10.31	34.19	A
NEC25A	42.30	9.07	33.23	A
NEC26A	43.65	9.11	34.54	A
NEC27AE	43.73	15.09	28.64	A
NEC28AE	42.27	11.48	30.79	A
NEC-PZ-1A	42.47	10.21	32.26	A
NEC-PZ-2A	43.02	10.43	32.59	A
NEC-PZ-3A	43.16	9.78	33.38	A
29A[1]	46.08	11.77	34.31	A
32A[1]	45.06	11.69	33.37	A
119A[1]	45.95	12.25	33.70	A
153A[1]	45.72	11.48	34.24	A
158A[1]	48.09	10.51	37.58	A

[1] Regional Groundwater Remediation Program (RGRP) monitoring wells.

Table 5
Analytical Results - December 2010 Sampling Event
501 Ellis Street, Mountain View, California

WELL ID	NEC1A	NEC1AE	NEC7A	NEC8A	NEC9A	NEC10A	NEC11A	NEC12A	NEC20A	NEC21A	NEC22A	NEC23A	NEC24A	NEC25A	NEC26A	NEC27AE	NEC28AE	NECPZ-1A	NECPZ-2A	NECPZ-3A	NECPZ-3A (DUP)
DATE OF SAMPLE	12/21/10	12/13/10	12/21/10	12/20/10	12/21/10	12/21/10	12/21/10	12/22/10	12/22/10	12/22/10	12/22/10	12/22/10	12/22/10	12/22/10	12/22/10	12/20/10	12/20/10	12/20/10	12/20/10	12/20/10	12/20/10
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Bromodichloromethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Carbon Tetrachloride	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloroethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Dibromochloromethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichlorobenzene	2.9	1.1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.5	ND (1.0)	ND (0.5)	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.8	ND (0.5)	ND (0.5)	ND (1.0.)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethene	ND (0.5)	ND (0.5)	0.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1.7	0.6	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethene	23	27	14	6.9	45	8.6	2.8	2.0	0.7	18	19	24	35	5.7	3.0	10	23	5.0	13	9.9	11
trans-1,2-Dichloroethene	4.4	5.2	ND (0.5)	0.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.8	ND (0.5)	ND (0.5)	1.8	2.3	ND (1.0)	1.2	9.6	ND (0.5)	1.2	1.7	1.8
1,2-Dichloropropane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Freon 113	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (4.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Methylene Chloride	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (40)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
1,1,2,2-Tetrachloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethene	1.4	0.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.9	0.9
1,1,1-Trichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trichloroethene	83	49	75	85	2.7	23	22	0.6	1.6	5.6	20	82	53	40	130	88	80	51	34	54	58
Trichlorofluoromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

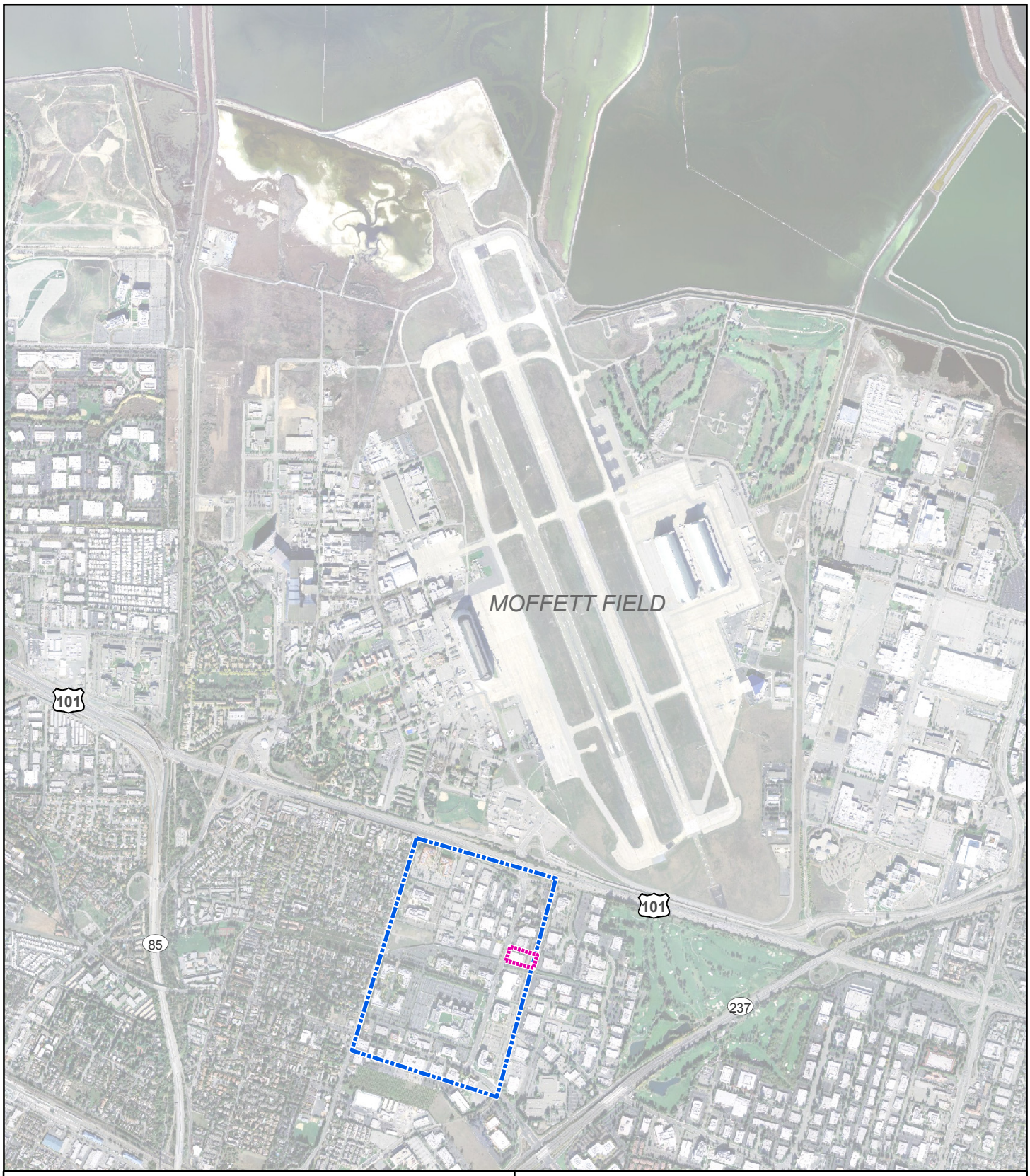
Notes: Samples analyzed by EPA Method 8260 (8010 Analyte list) by Curtis & Tompkins, Ltd.
ND - Analyte not detected above listed detection limit

Table 6
Analytical Results - NEC1AE Quarterly Sampling
501 Ellis Street, Mountain View, California

WELL ID	NEC1AE	NEC1AE	NEC1AE	NEC1AE
DATE OF SAMPLE	03/17/10	06/14/10	09/13/10	12/13/10
UNITS	µg/L	µg/L	µg/L	µg/L
Bromodichloromethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Carbon Tetrachloride	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloroethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Dibromochloromethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichlorobenzene	1.1	1.1	1.2	1.1
1,3-Dichlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	ND (0.5)	ND (0.5)	0.6	ND (0.5)
1,2-Dichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethene	24	23	32	27
trans-1,2-Dichloroethene	5.8	4.9	6.7	5.2
1,2-Dichloropropane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Freon 113	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Methylene Chloride	ND (20)	ND (20)	ND (20)	ND (20)
1,1,2,2-Tetrachloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethene	0.6	0.6	0.6	0.6
1,1,1-Trichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trichloroethene	55	53	51	49
Trichlorofluoromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Notes: Extraction from NEC-1AE discontinued on 15 May 2009 as part of SCGWR system optimization.
Samples analyzed by EPA Method 8260 (8010 Analyte list) by Curtis & Tompkins, Ltd.
ND - Analyte not detected above listed detection limit

FIGURES



Legend

501 Ellis Street

MEW Study Area

N

NOTE:
Aerial photogrpahy provided by TerraServer.
Boundaries are approximate.

0 1,000 2,000 Feet

Figure 1
Site Location Map

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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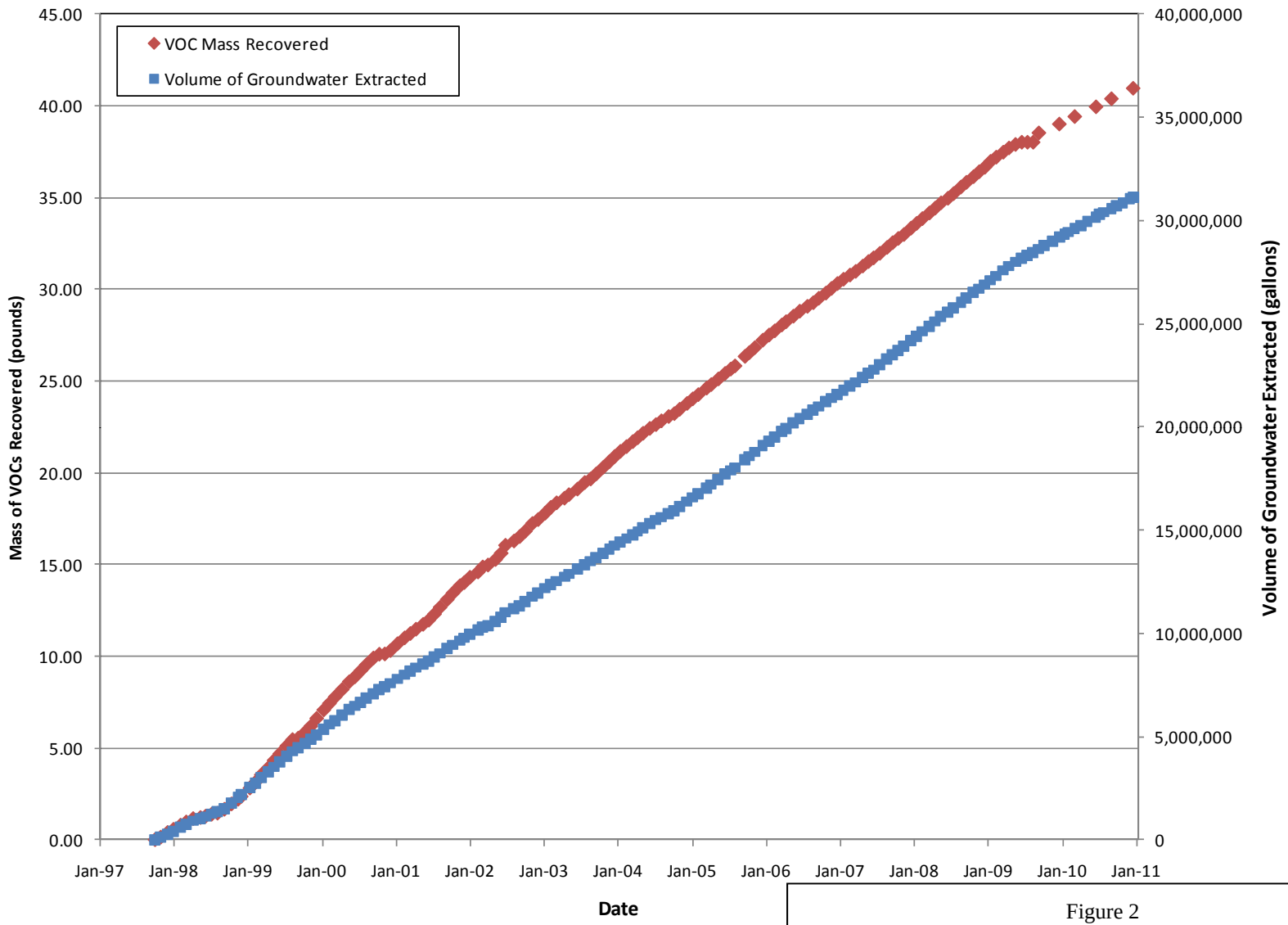


Figure 2
Groundwater Extracted and Mass of VOCs Removed

April 2011	501 Ellis Street Mountain View, California	Geosyntec consultants

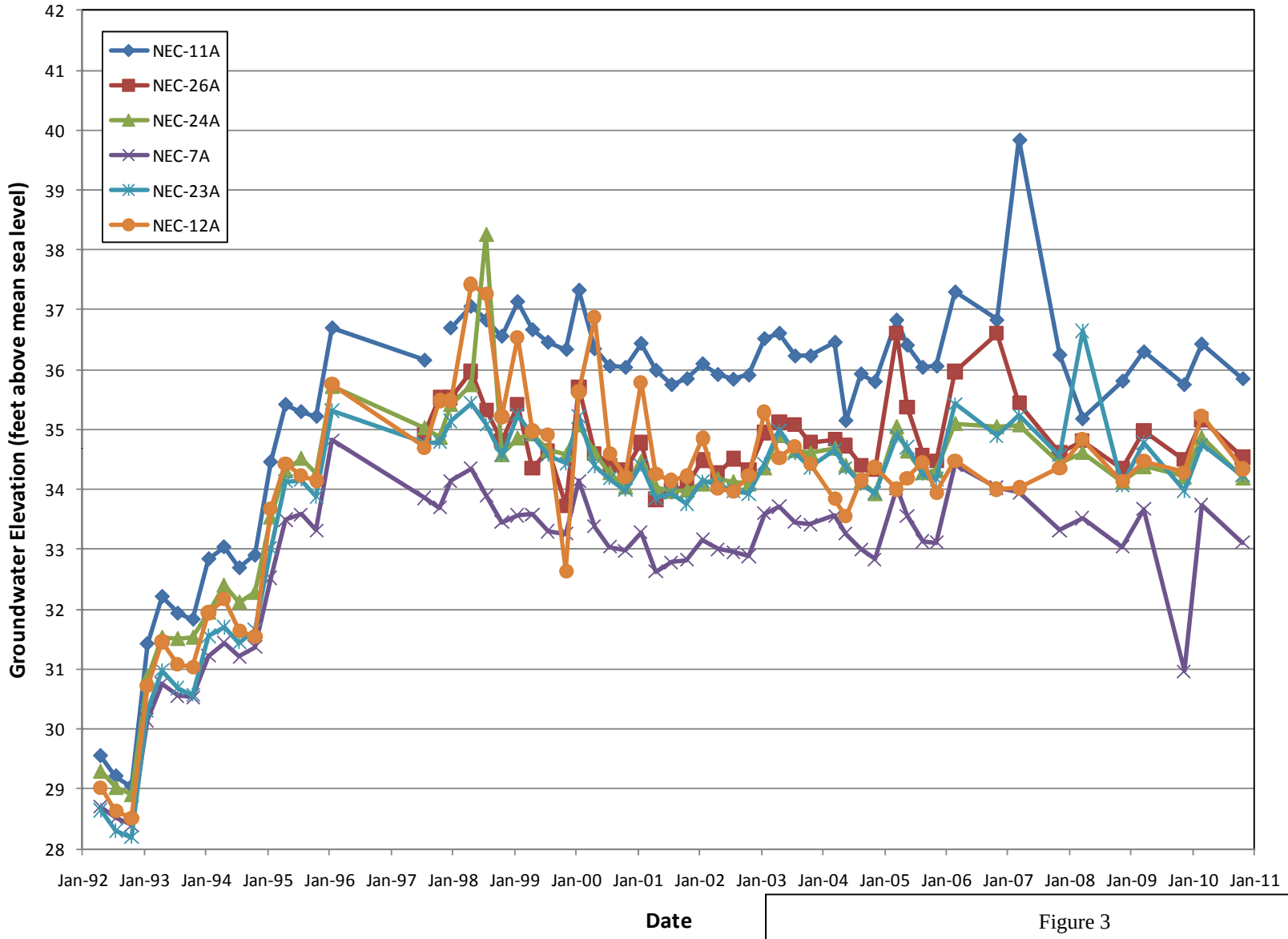
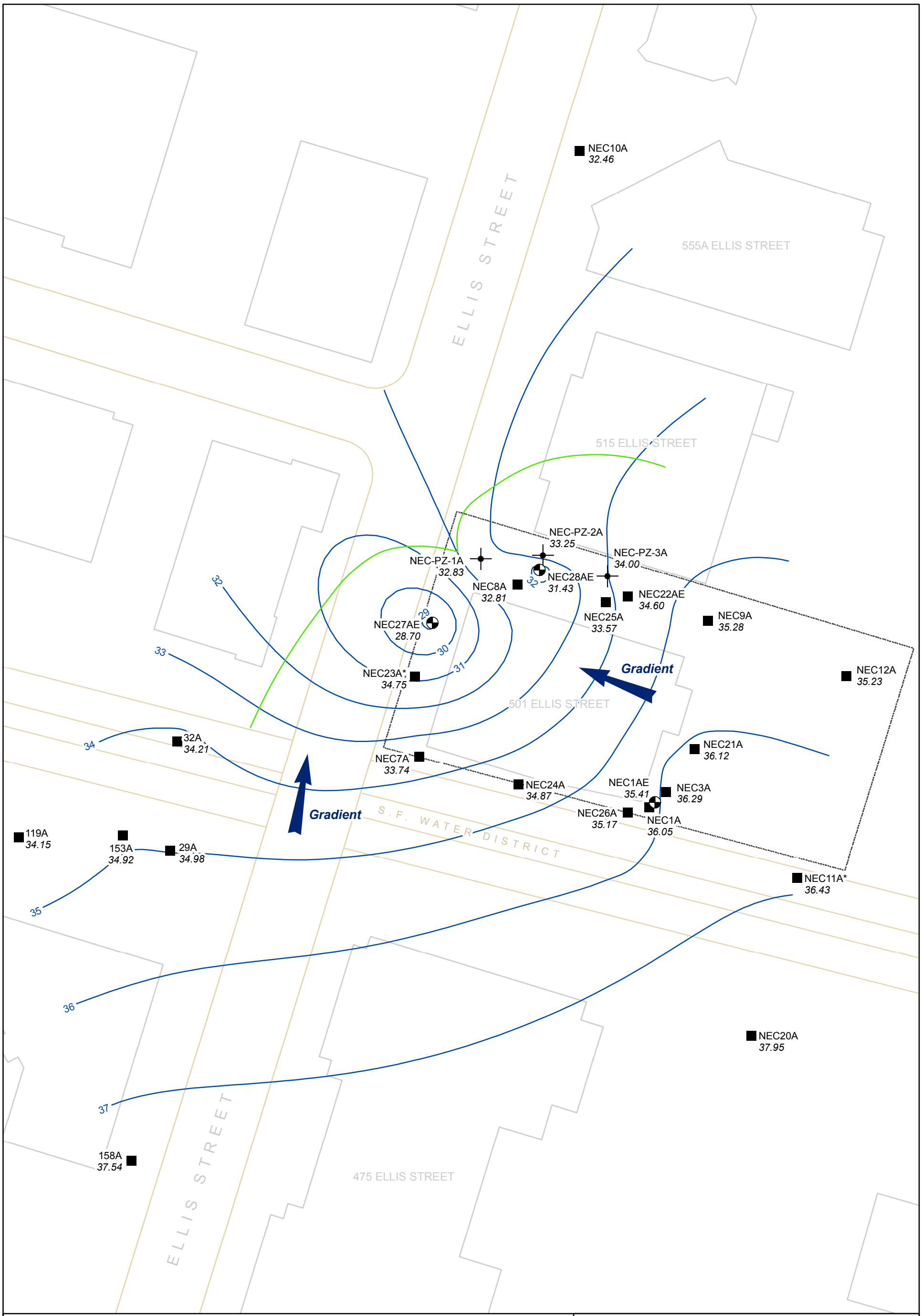


Figure 3
Groundwater Elevations in Selected Monitoring Wells

April 2011	501 Ellis Street Mountain View, California	Geosyntec consultants



Legend

- Estimated Capture Zone
- Groundwater Elevation Contour (ft MSL)
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road
- Groundwater Flow Direction

Extraction Rates (gpm)
NEC-1AE - 0.00
NEC-27AE - 2.03
NEC-28AE - 1.99

N

* Asterisk indicates well with short screen interval, not used with contouring.
NM - Not Measured
MSL - Mean Sea level

0 40 80 160 Feet

Figure 4
Groundwater Elevation Contour Map and Capture Zone First Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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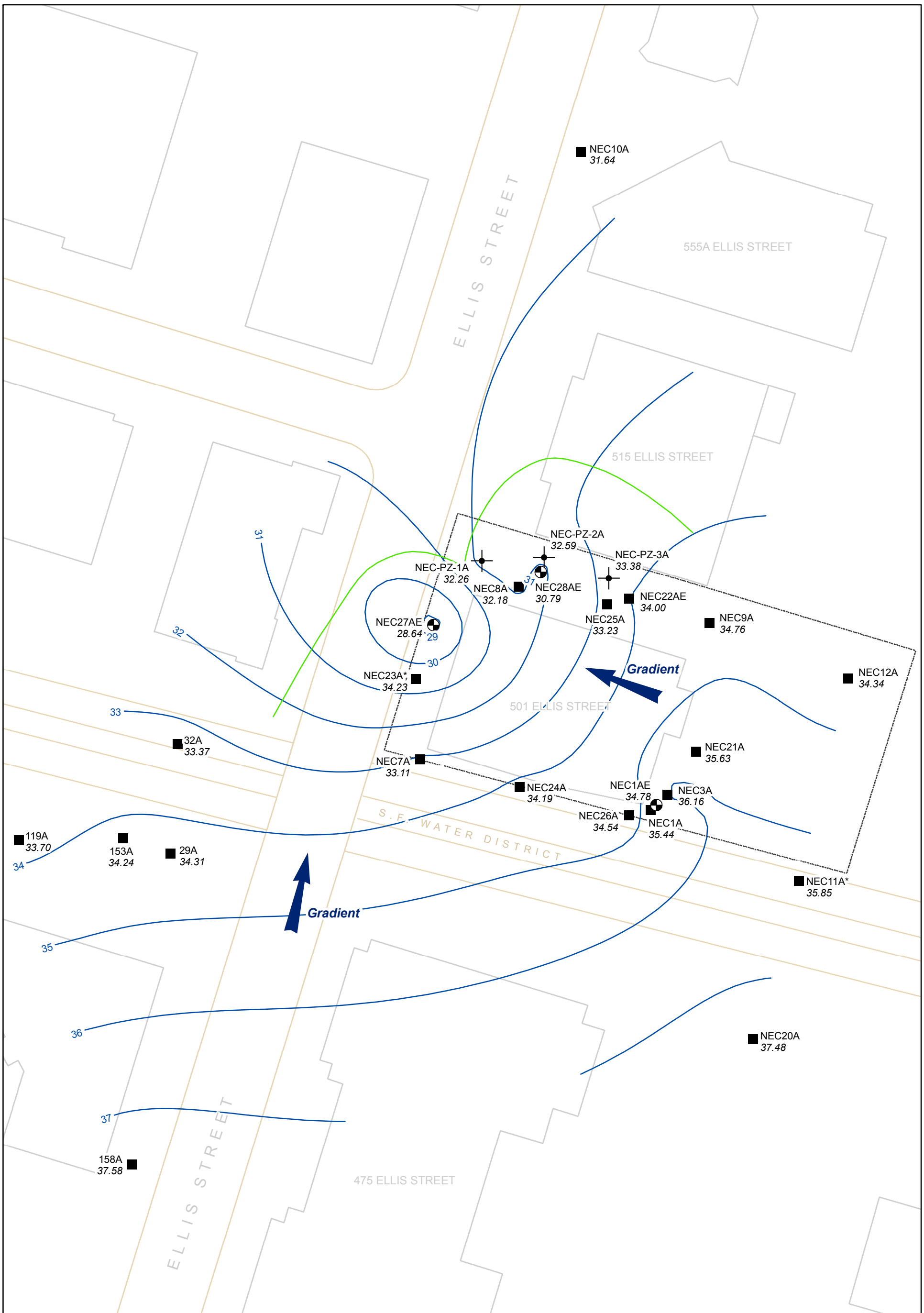

Legend

- Estimated Capture Zone
- Groundwater Elevation Contour (ft MSL)
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road
- Groundwater Flow Direction

Extraction Rates (gpm)
NEC-1AE - 0.00
NEC-27AE - 1.81
NEC-28AE - 1.99

N

* Asterisk indicates well with short screen interval, not used with contouring.
NM - Not Measured
MSL - Mean Sea level

0 40 80 160 Feet

Figure 5
Groundwater Elevation Contour Map and Capture Zone
Fourth Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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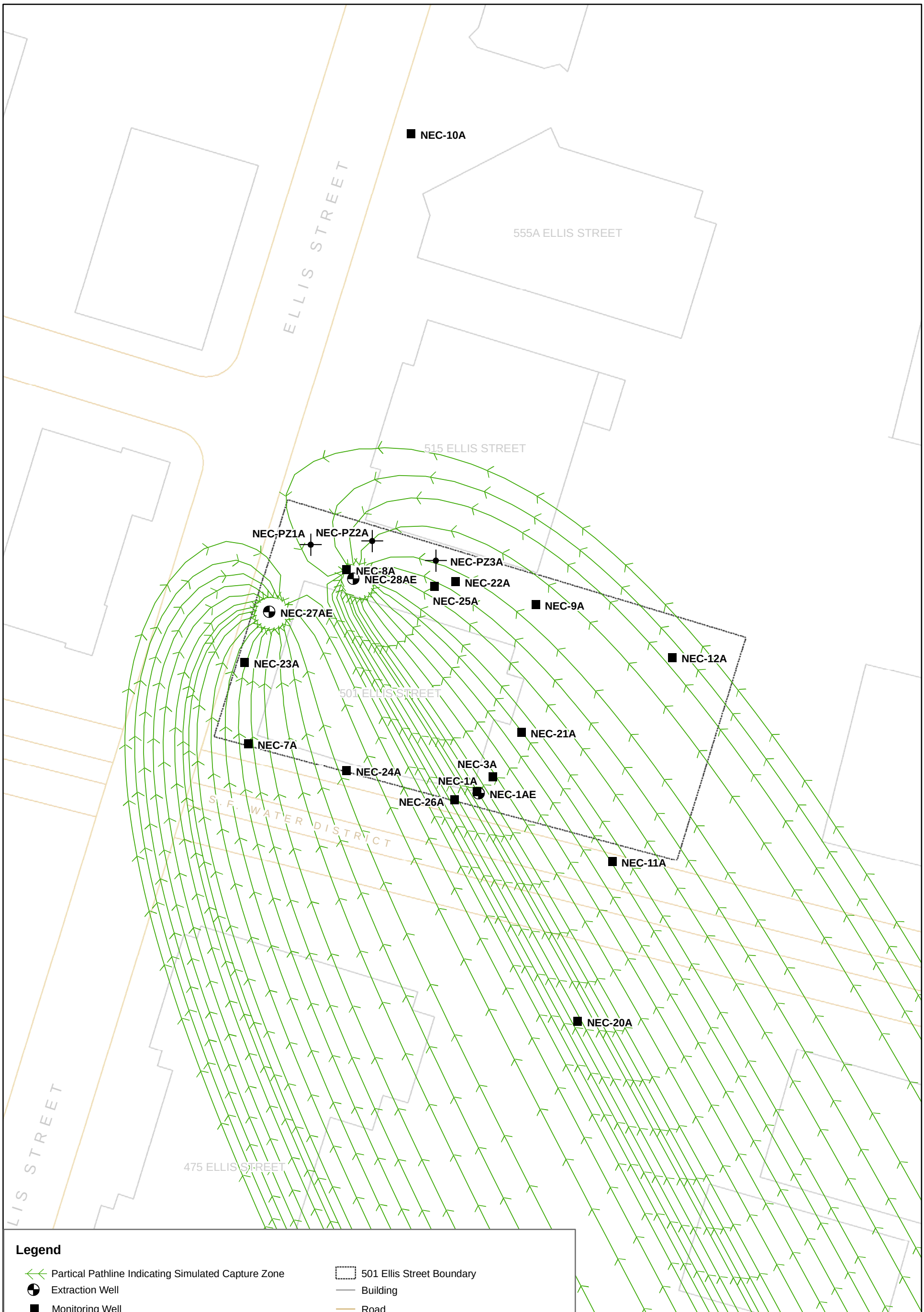

Legend

- Partical Pathline Indicating Simulated Capture Zone
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road

Model Parameters:

Transmissivity: 91 ft^2/day	Extraction Rates (gpm)
Hydraulic Gradient 0.0008 ft/ft, N28W	NEC-1AE - 0.00
Recharge 1 in/yr	NEC-27AE - 2.03
	NEC-28AE - 1.99

N

0 40 80 160 Feet

Figure 6
Simulated A Aquifer Capture Zone
First Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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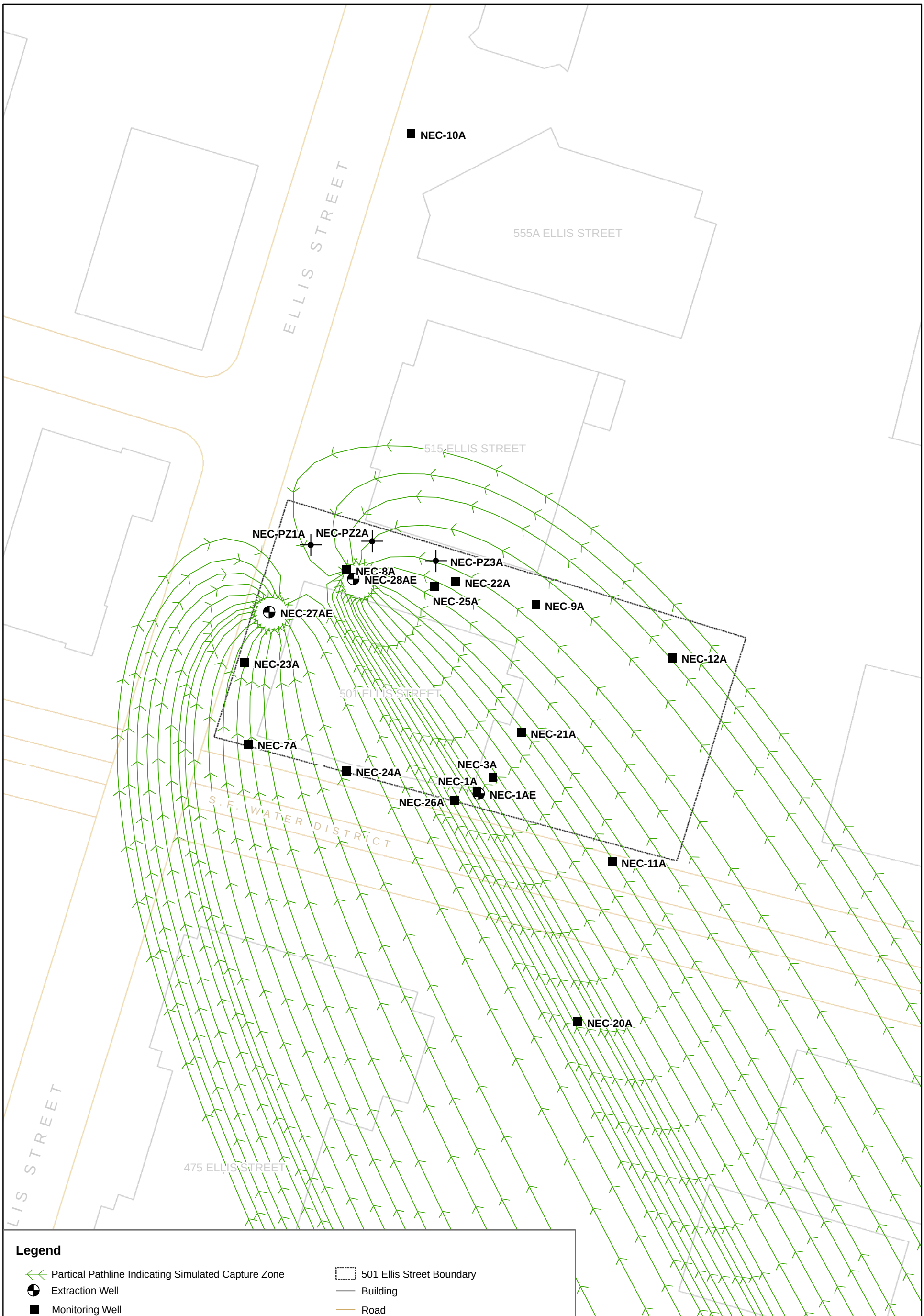

Figure 7
Simulated A Aquifer Capture Zone
Second Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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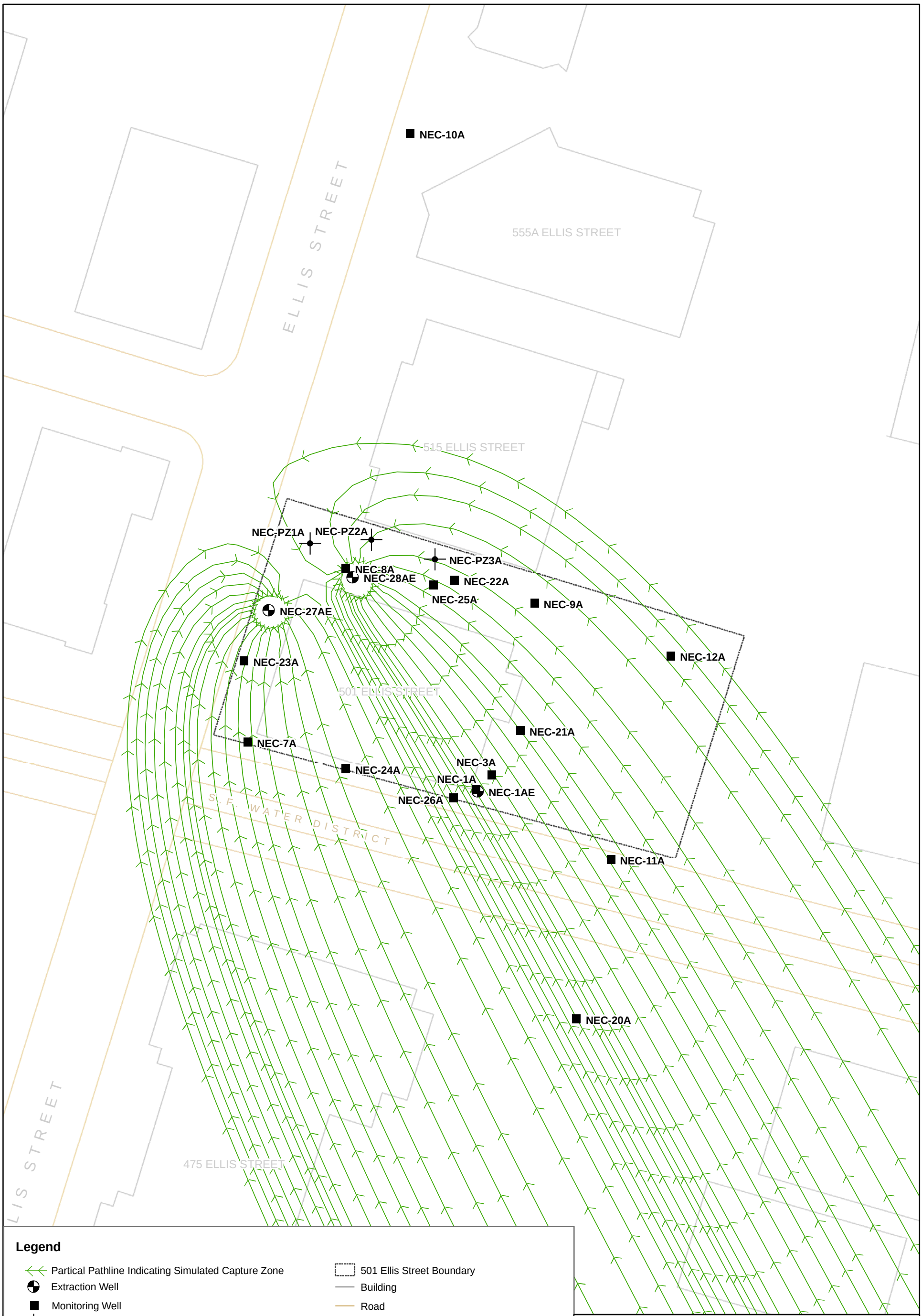

Figure 8
Simulated A Aquifer Capture Zone
Third Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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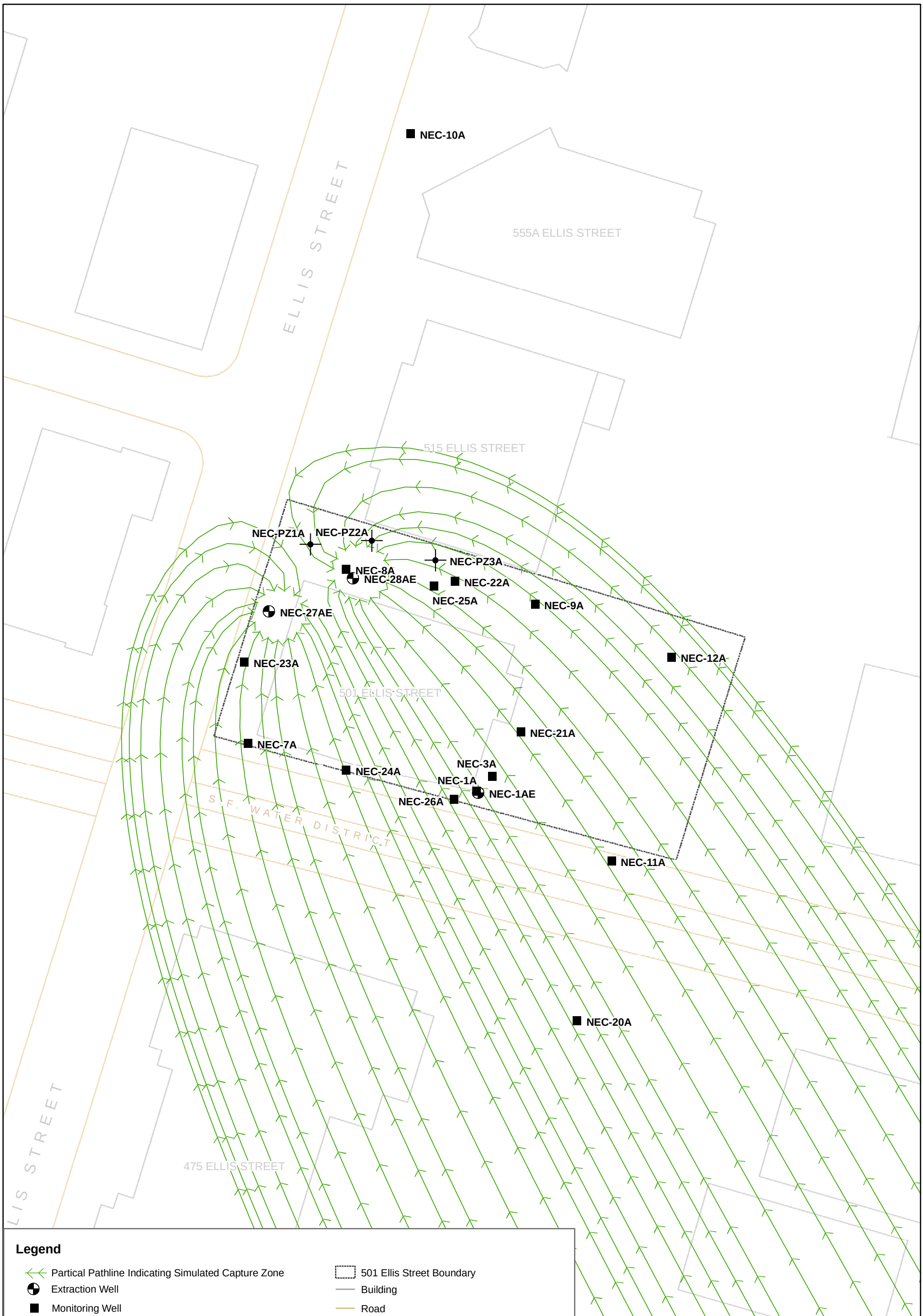

Legend

- Partical Pathline Indicating Simulated Capture Zone
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road

Model Parameters:

Transmissivity: 91 ft^2/day	Extraction Rates (gpm)
Hydraulic Gradient 0.0008 ft/ft, N28W	NEC-1AE - 0.00
	NEC-27AE - 1.81
	NEC-28AE - 1.99
Recharge 1 in/yr	

N

Note: Extraction from well NEC-1AE discontinued on 13 May 2009 as part of SGGWR system optimization

0 40 80 160 Feet

Figure 9
Simulated A Aquifer Capture Zone
Fourth Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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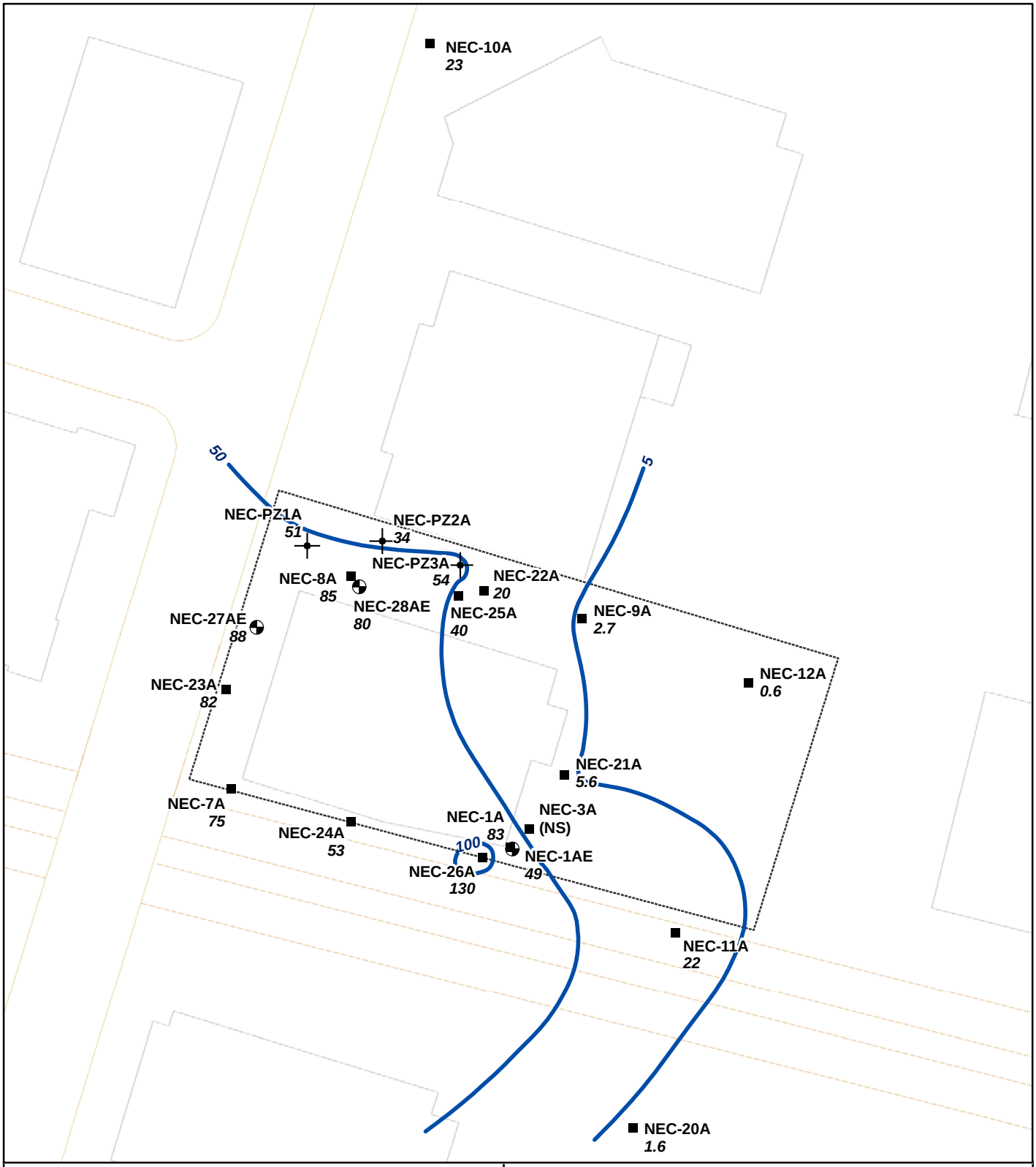

Legend

- Extraction Well TCE Concentration (80)
- Monitoring Well TCE Concentration (53)
- Piezometer
- Estimated TCE Concentration Contour ug/L
- 501 Ellis street Boundary

Feet: 0 25 50 100

N

Notes: ug/L - Micrograms per Liter; TCE - Trichloroethene
NS - Not Sampled

Figure 10
TCE Concentration Contour Map
Fourth Quarter 2010

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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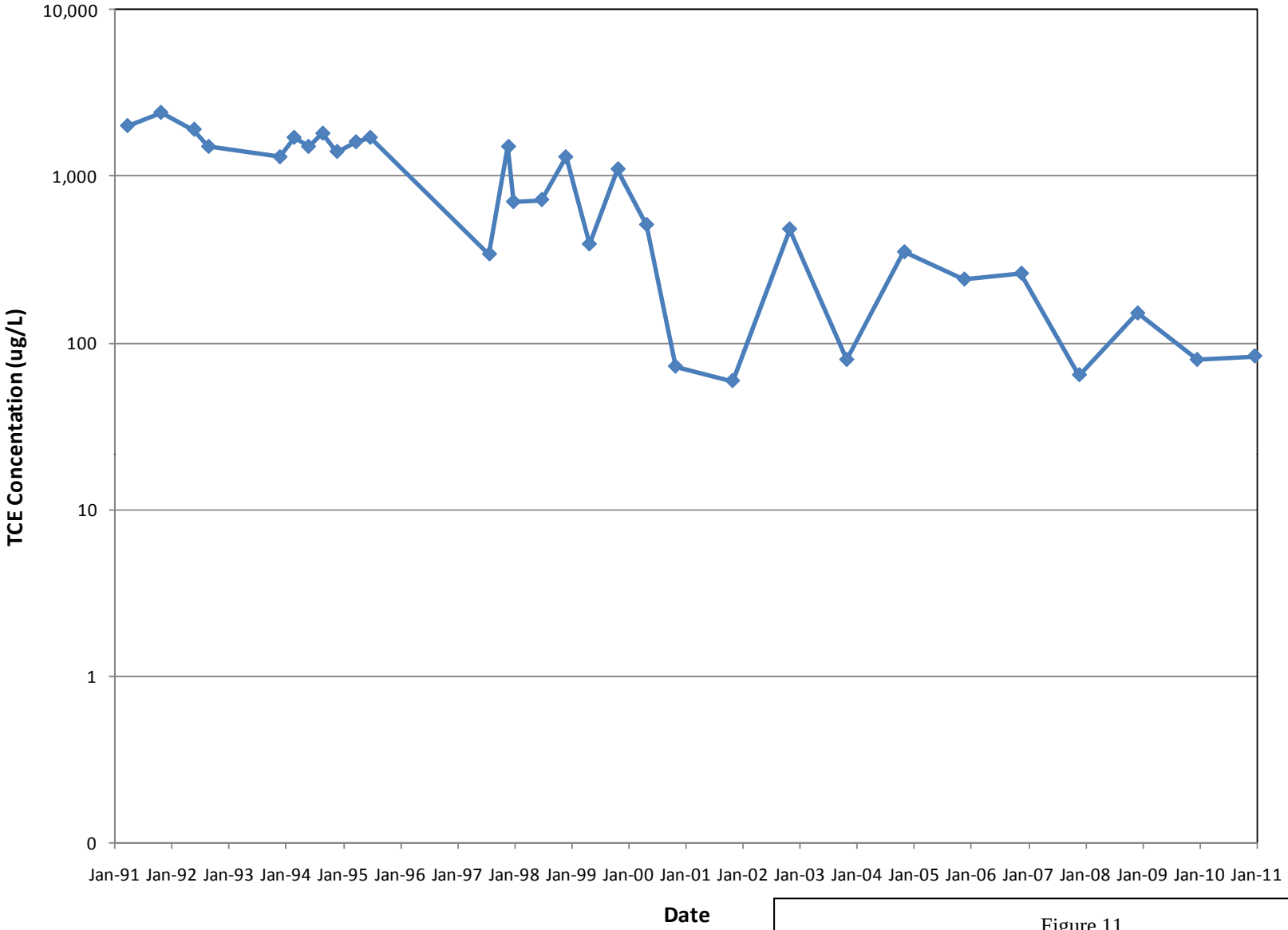


Figure 11
TCE Concentrations in Well NEC-1A

April 2011	501 Ellis Street Mountain View, California	Geosyntec consultants

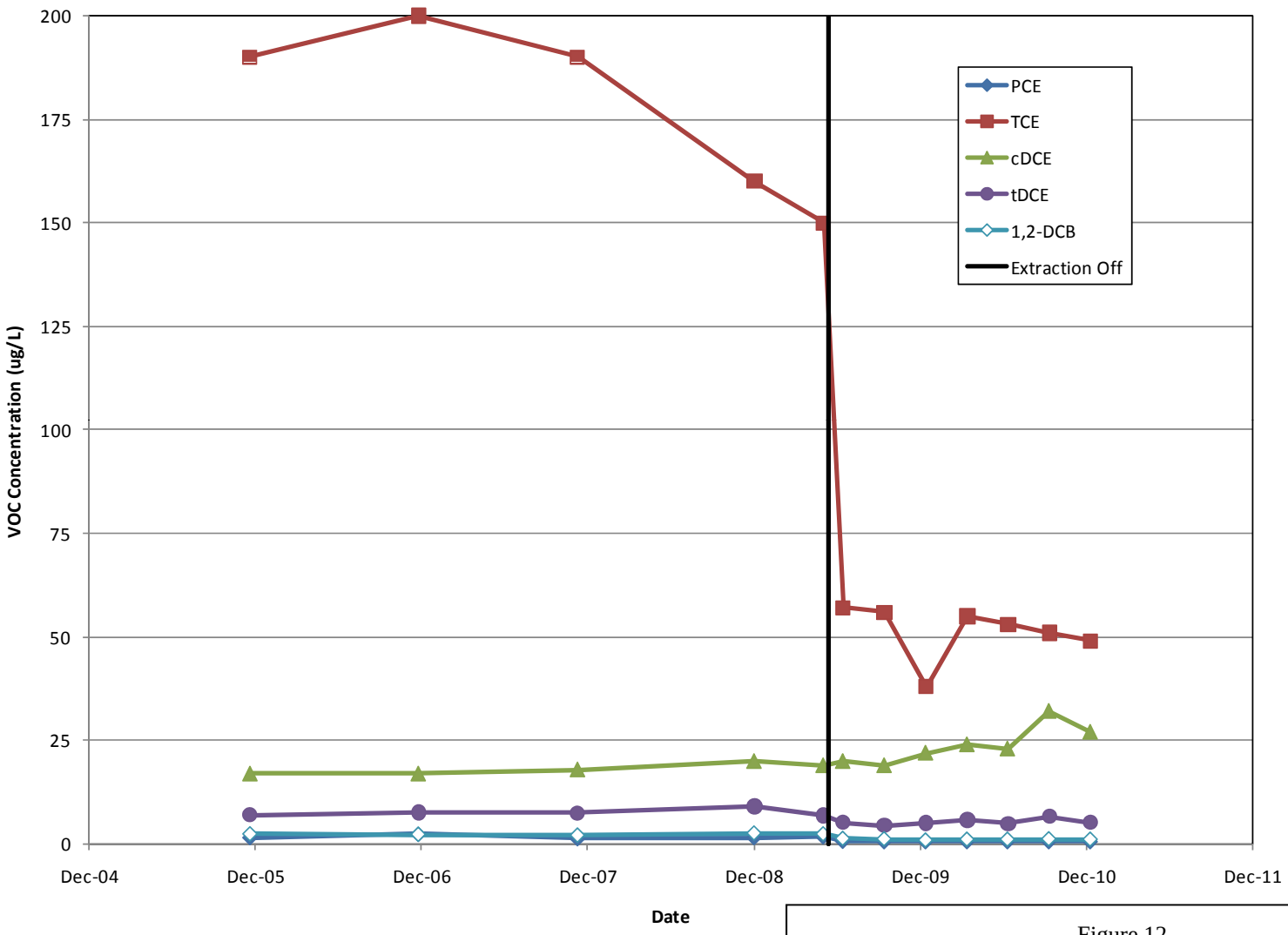


Figure 12
TCE Concentrations in Well NEC-1AE

April 2011	501 Ellis Street Mountain View, California	Geosyntec consultants

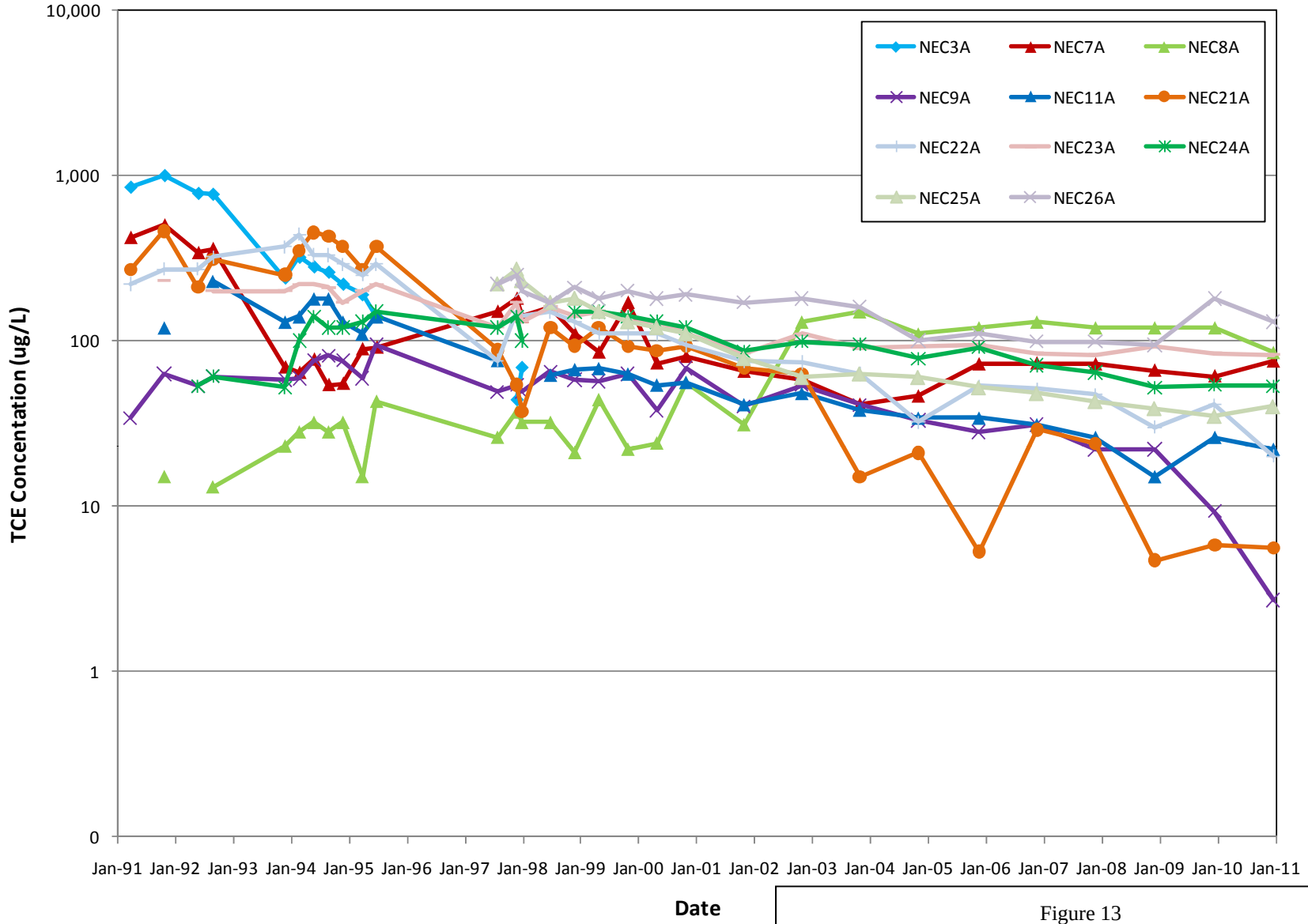
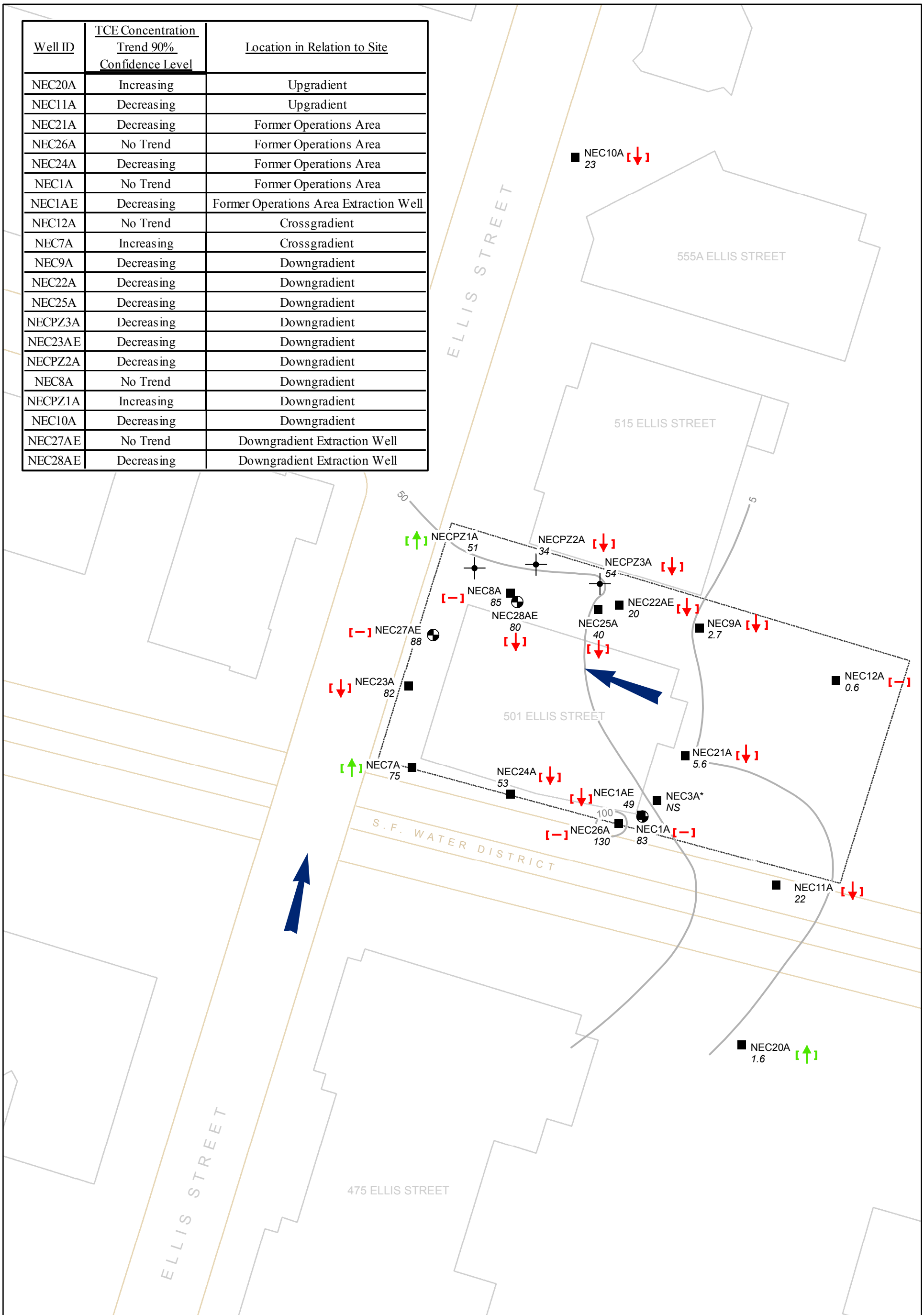


Figure 13
TCE Concentrations in Groundwater

April 2011	501 Ellis Street Mountain View, California	Geosyntec consultants

Well ID	TCE Concentration Trend 90% Confidence Level	Location in Relation to Site
NEC20A	Increasing	Upgradient
NEC11A	Decreasing	Upgradient
NEC21A	Decreasing	Former Operations Area
NEC26A	No Trend	Former Operations Area
NEC24A	Decreasing	Former Operations Area
NEC1A	No Trend	Former Operations Area
NEC1AE	Decreasing	Former Operations Area Extraction Well
NEC12A	No Trend	Crossgradient
NEC7A	Increasing	Crossgradient
NEC9A	Decreasing	Downgradient
NEC22A	Decreasing	Downgradient
NEC25A	Decreasing	Downgradient
NECPZ3A	Decreasing	Downgradient
NEC23AE	Decreasing	Downgradient
NECPZ2A	Decreasing	Downgradient
NEC8A	No Trend	Downgradient
NECPZ1A	Increasing	Downgradient
NEC10A	Decreasing	Downgradient
NEC27AE	No Trend	Downgradient Extraction Well
NEC28AE	Decreasing	Downgradient Extraction Well



Legend

- TCE Concentration Contour (ug/L)
- Extraction Well
- Monitoring Well
- Piezometer
- Groundwater Flow Direction
- [↑] Increasing TCE Contentration Trend
- [↓] Decreasing TCE Concentration Trend
- [—] Stable TCE Concentration Trend
- 501 Ellis Street Boundary
- Building
- Road
- TCE - Trichloroethene

N

0 40 80 160 Feet

* Asterisk indicates well not sampled for VOCs.

Figure 14
TCE Concentration Trend Analysis

501 Ellis Street
Mountain View, California

Project WR0434	April 2011	Geosyntec consultants

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APPENDIX A

2010 Annual Report Remedy Performance Checklist

2010 Annual Report Remedy Performance Checklist

I. GENERAL SITE INFORMATION	
Facility Name: 501 Ellis Street	
Facility Address, City, State: 501 Ellis Street, Mountain View, CA	
Checklist completion date: 15 April 2011	EPA Site ID: CAD980883268 (CERCLIS database)
Site Lead: ☐ Fund ☐ PRP ☐ State ☐ State Enforcement ☐ Federal Facility ☒ Other, specify: U.S. EPA Region 9	
Site Remedy Components (Include Other Reference Documents for More Information, as appropriate): (See Section 4.2.5 *"Final, Second Five-Year Report for MEW Superfund Study Area, Mountain View, California."* U.S. EPA Region 9. September 2009.) **Soil Remedy.** Excavation and aeration. About 210 cubic yards of soil were excavated and aerated. 55 cubic yards were reused as backfill on site; the remaining 155 cubic yards were disposed offsite. **Groundwater Remedy.** Source control groundwater extraction system consisting of two A zone groundwater extraction wells, and discharge to City of Mountain View sanitary sewer under City of Mountain View Wastewater Discharge Permit ID Number 925.	

II. CONTACTS

List important personnel associated with the Site: Name, title, phone number, e-mail address:

	Name/Title	Phone	E-mail
PRP / Facility Representative	John Jeter, Esq. Senior Corporate Counsel Renesas Electronics America, Inc.	408.588.6185	john.jeter@renesas.com
PRP Contractor/ Consultant	Carolyn Kneiblher, C.HG. Geosyntec Consultants Eric Suchomel, Ph.D., P.E. Geosyntec Consultants	510.836.3034	ckneiblher@geosyntec.com esuchomel@geosyntec.com
O&M Contractor	Mr. Wes Hawthorne Locus Technologies, Inc.	650.960.1640	hawthornej@locustec.com
Other	N/A	N/A	N/A

2010 Annual Report Remedy Performance Checklist

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year?_____
Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs): _____
- Labor (e.g., site maintenance, sampling): _____
- Materials (e.g., treatment chemicals): _____
- Oversight (e.g., project management): _____
- Utilities (e.g., electric, gas, phone, water): _____
- Reporting (e.g., NPDES, progress): _____
- Other (e.g., capital improvements): _____

Describe unanticipated/unusually high or low O&M costs (go to section [fill in] to recommend optimization methods):

IV. ON-SITE DOCUMENTS AND RECORDS (Check all that apply)

☒ O&M Manual ☐ O&M Maintenance Logs ☐ O&M As-built drawings ☐ O&M reports
☐ Daily access/Security logs
☒ Site-Specific Health & Safety Plan ☒ Contingency/Emergency Response Plan
☐ O&M/OSHA Training Records ☐ Settlement Monument Records
☐ Gas Generation Records ☐ Groundwater monitoring records ☐ Leachate extraction records
☐ Discharge Compliance Records
☐ Air discharge permit ☐ Effluent discharge permit ☒ Waste disposal, POTW permit

Are these documents currently readily available? ☒ Yes ☐ No If no, where are records kept?

V. INSTITUTIONAL CONTROLS (as applicable)

List institutional controls called for (and from what enforcement document): Not applicable

Status of their implementation:

Where are the ICs documented and/or reported?

ICs are being properly implemented and enforced? ☐ Yes ☐ No, elaborate below
ICs are adequate for site protection? ☐ Yes ☐ No, elaborate below

Additional remarks regarding ICs:

2010 Annual Report Remedy Performance Checklist

VI. SIGNIFICANT SITE EVENTS **Check all Significant Site events Since the Last Checklist that Affects or May Affect Remedy Performance**
☐ Community Issues ☐ Vandalism ☐ Maintenance Issues ☐ Other:
Please elaborate on Significant Site Events:
VII. REDEVELOPMENT
Is redevelopment on property planned? ☐ Yes ☒ No If yes, what is planned? Please describe below. Is redevelopment plan complete ☐ Yes, date:_____; ☐ No ? ☐ Not Applicable Redevelopment proposal in progress? ☐ Yes, elaborate below ☐ No; If no, is a proposal anticipated? ☐ Yes ☐ No
☐ Is the redevelopment proposal compatible with remedy performance? ☐ Yes ☐ No Elaborate on redevelopment proposal and how it affects remedy performance:

2010 Annual Report Remedy Performance Checklist

VIII. GROUNDWATER REMEDY (reference isoconcentration, capture zone maps, trend analysis, and other documentation to support analysis)

Groundwater Quality Data

List the types of data that are available: What is the source report?

2010 Annual Progress Report submitted April 2011. Data includes groundwater levels, groundwater elevation contours and estimated capture zone analyses, groundwater sampling results (lab reports and summary tables) and TCE isoconcentration contour maps (annual only), concentration versus time graphs for all monitoring wells, and Mann-Kendall concentration trend analyses for TCE in all wells.

☐ Contaminant trend(s) tracked during O&M (i.e., temporal analysis of groundwater contaminant trends).
☒ Groundwater data tracked with software for temporal analyses.
☐ Reviewed MNA parameters to ensure health of substrate (e.g., DO, pH, temperature), if appropriate?

Groundwater Pump & Treat Extraction Well and Treatment System Data

List the types of data that are available: What is the source report?

2010 Annual Progress Report submitted April 2011. Data includes extraction system operating parameters (e.g. flow rates and volumes) operations and maintenance records, and effluent monitoring results per City of Mountain View reporting requirements. In addition, the progress report documents site-related meetings, reports submitted, investigations performed, historical and current groundwater elevation and sampling results, etc.

☒ The system is functioning adequately.
☐ The system has been shut down for significant periods of time in the past year. Please elaborate below.

Discharge Data

List the types of data that are available: What is the source report?

Semi-annual Periodic Reports of Continued Compliance (PRCC) submitted to the City of Mountain View in July and December 2010. Data includes results of self-monitoring analysis (flow rates, volumes, effluent chemistry, etc.) conducted during the first and second halves of 2010.

☒ The system is in compliance with discharge permits.

Slurry Wall Data NA

List the types of data that are available: What is the source report?

Is slurry wall operating as designed? ☐ Yes ☐ No

If not, what is being done to correct the situation?

Elaborate on technical data and/or other comments

2010 Annual Report Remedy Performance Checklist

IX. AIR MONITORING/VAPOR INTRUSION PATHWAY EVALUATION (Include in Annual Progress Report and reference document)
Walk-throughs/Surveys: None during 2010 **Air testing/monitoring conducted:** No indoor air testing conducted at the Site in 2010.
Summary of Results: N/A **Problems Encountered:** N/A **Recommendations/Next Steps:** No further action recommended.
Schedule:
X. REMEDY PERFORMANCE ASSESSMENT
A. Groundwater Remedies
What are the remedial goals for groundwater? ☒ Plume containment (prevent plume migration); ☒ Plume restoration (attain ROD-specific cleanup levels in aquifer); ☐ Other goals, please explain: See Source Control discussion, Section C., below. Have you done a trend analysis? ☒ Yes ☐ No; If Yes, what does it show? (Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing?) Explain and provide source document reference. Figure 13 of the 2010 Annual Report indicates decreasing or stable TCE concentrations in NEC monitoring wells.
If plume containment is a remedial goal, check all that apply: ☒ Plume migration is under control (explain basis below) ☐ Plume migration is not under control (explain basis below) ☐ Insufficient data to determine plume stability (explain below) (Include attachments that substantiate your answers, e.g., reference plume, trend analysis, and capture zone maps in source document)
Elaborate on basis for determining that plume containment goal is being met or not being met: Capture zone analysis indicates plume is contained (Figures 4 through 9 in the 2010 Annual Report).
If plume restoration is a cleanup objective, check all that apply: ☒Progress is being made toward reaching cleanup levels (explain basis below) ☐ Progress is not being made toward reaching cleanup levels (explain basis below) ☐ Insufficient data to determine progress toward restoration goal (explain below)
Elaborate on basis for determining progress or lack of progress toward restoration goal: TCE concentrations within the plume are decreasing (Figure 10 in the 2010 Annual Report)
B. Vertical Migration

2010 Annual Report Remedy Performance Checklist

Have you done an assessment of vertical gradients? ☒ Yes ☐ No; If Yes, what does it show? (Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing? Explain and provide source document reference)

Vertical gradients were assessed in 1995. The vertical gradients were assessed between the A and B1 units, B1 and B2 units, and B2 and B3 units. Gradients in 16 of 17 well pairs were upward. Gradient in the deeper B2-B3 well pair was downward.

C. Source Control Remedies

What are the remedial goals for source control?

Containment by pumping.

Elaborate on basis for determining progress or lack of progress toward these goals:

On-site capture is achieved through two extraction wells and concentration trends are decreasing.

XI. PROJECTIONS

Administrative Issues
Dates of next monitoring and sampling events for next annual reporting period: 2011 Annual Monitoring will be scheduled by the MEW parties.

A. Groundwater Remedies - Projections for the upcoming year and long-term (Check all that apply)

Remedy Projections for **the upcoming year (2011)**
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☒ Groundwater Pump & Treat will be shut down. Target date: July 2011. Proposal will be submitted to EPA April 2011.
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date:
□ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
□ Modification on groundwater treatment? Elaborate below. Target date:
□ Change in discharge location. Target date:
☐ Other modification(s) anticipated:_____ Elaborate below. Target date:

Elaborate on Remedy Projections:

Remedy Projections for **the long-term** (Check all that apply)
☒ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date:
□ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
□ Modification on groundwater treatment? Elaborate below. Target date:

2010 Annual Report Remedy Performance Checklist

□ Change in discharge location. Target date: ☐ Other modification(s) anticipated:_____ Elaborate below. Target date:
Elaborate on Remedy Projections: Projected long-term remedy projections are the same as the projections for 2010.
B. Projections – Slurry Walls (Check all that apply) – N/A
Remedy Projections for **the upcoming year** ☐ No significant changes projected. ☐ PRP will request remedy modification. Target date of request: ☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date: ☐ Other modification(s) anticipated:_____ Elaborate below. Target date:
Elaborate on Remedy Projections:
Remedy Projections for **the long-term** ☐ No significant changes projected. ☐ PRP will request remedy modification. Target date of request: ☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date: ☐ Other modification(s) anticipated:_____ Elaborate below. Target date:
Elaborate on Remedy Projections:
C. Projections – Other Remedial Options Being Reviewed to Enhance Cleanup Progress implementing recommendations from last report or Five-Year Review Has optimization study been implemented or scheduled? ☒ Yes; ☐ No; If Yes, please elaborate. Modifications to the SCGWR system to allow discharge to the City of Mountain View sanitary sewer were completed in May 2009 and discharge to the sanitary sewer was started. Extraction well NEC-01AE was shut down, and the target flow rates at extraction wells NEC-27AE and NEC-28AE were set to nominal values of 2.0 gpm.
XII. ADMINISTRATIVE ISSUES **Check all that apply:**
☐ Explanation of Significant Differences in progress ☐ ROD Amendment in progress ☐ Site in operational and functional ("shake down") period; ☐ Notice of Intent to Delete in progress ☐ Partial site deletion in progress ☐ TI Waivers ☐ Other administrative issues: Date of Next EPA Five-Year Review: **September 30, 2014**

2010 Annual Report Remedy Performance Checklist

XII. RECOMMENDATIONS

APPENDIX B

Capture Zone Calculations

CALCULATIONS FOR CAPTURE ZONE ANALYSIS – 1ST QUARTER 2010

The 1st quarter 2010 capture zone analysis was conducted using two methodologies; the Javandel and Tsang (1987)[1] methodology, and a site-specific numerical model. Both methodologies require the same input parameters to estimate the capture zones of the groundwater extraction wells. The input parameters used in the numerical model were evaluated during the 4th Quarter 2004 and reflect the current understanding of the Site. Other than the pumping rates of the extraction wells, the input parameters were not reevaluated during this quarter.

Pumping Rate

The average pumping rates during the first quarter of 2010 for the two operating pumping wells at 501 Ellis Street are summarized below.

Well	Q (gpm)	Q (ft^3/day)
NEC27AE	2.03	390.77
NEC28AE	1.99	383.07

Hydraulic Gradient

The hydraulic gradient, *i*, was calculated using the November 2004 regional potentiometric surface in the area of the Site from Weiss Associates (2004).

$$i = \frac{5\,ft}{625\,ft} = \boxed{0.008\ \frac{ft}{ft}}$$

Aquifer Thickness

A uniform aquifer thickness, B, was assumed to be **20 feet**. The interlayered heterogeneities of the A aquifer, observed in the stratigraphy of the pumping wells, are treated as a single unit extending from 10 to 30 feet below ground surface.

Transmissivity

Transmissivity, T, was measured by Bechtel (1996) in monitoring wells NEC-12A, NEC-25A, and NEC-22A.

Well	T (ft^2/day)	Average T in each well
NEC-12A	6.5	6.5
NEC-22A	35	28
	21	
NEC-25A	188	239.5
	291	
	Average T	**91.3 ft^2/day**

[1] Javandel and Tsang (1987). Groundwater, Vol. 25, No. 5. pp. 616-625.

Hydraulic Conductivity

The hydraulic conductivity, K, is calculated from the transmissivity, T, and aquifer thickness as follows:

$$K = \frac{T}{B} = \frac{91.3\, ft^2 / day}{20\, ft} = \boxed{4.6 \text{ ft/day}}$$

The input parameters for the Javandel and Tsang methodology, as well as the numerical model are summarized as follows:

Equation Parameter	NEC27AE	NEC28AE
Q (ft^3/day)	390.77	383.07
B (ft)	20	20
K (ft/day)	4.6	4.6
i (ft/ft)	0.008	0.008
U (ft/day)	0.0368	0.0368

Javandel and Tsang Methodology

From Javandel and Tsang, the stagnation point for each extraction well was calculated using Equation 1

$$X_s = \frac{Q}{2\pi Bu} \qquad (1)$$

where: X_s = stagnation point (ft)
Q = pumping rate (ft^3/day)
B = saturated aquifer thickness (ft)
U = Darcy's velocity (K*i) (ft/day)
K = hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)

Using Equation 1 and the calculated input parameters, the stagnation points for the two wells are:

NEC27AE	NEC28AE
84.56 ft	**82.89 ft**

The 1st quarter 2010 capture zones calculated using Javandel and Tsang are shown on Figure 4.

Numerical Simulation of Capture Zone

The 1st quarter 2010 capture zone at the Site was also estimated using a steady-state numerical stimulation of groundwater flow beneath the Site, incorporating particle tracking. The numerical model consisted of a 2,500 ft wide, by 2,500 ft long model domain, with either 10 ft by 10 ft, 10 ft by 20 ft, or 20 ft by 20 ft grid blocks. Based on an A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day, the numerical simulation of the groundwater potentiometric surface shows complete capture of A aquifer groundwater beneath the Site. The results are presented on Figure 6.

CALCULATIONS FOR CAPTURE ZONE ANALYSIS – 2ND QUARTER 2010

The 2nd quarter 2010 capture zone analysis was conducted using two methodologies; the Javandel and Tsang (1987)[1] methodology, and a site-specific numerical model. Both methodologies require the same input parameters to estimate the capture zones of the groundwater extraction wells. The input parameters used in the numerical model were evaluated during the 4th Quarter 2004 and reflect the current understanding of the Site. Other than the pumping rates of the extraction wells, the input parameters were not reevaluated during this quarter.

Pumping Rate

The average pumping rates during the second quarter of 2010 for the two operating pumping wells at 501 Ellis Street are summarized below.

Well	Q (gpm)	Q (ft^3/day)
NEC27AE	2.13	410.02
NEC28AE	2.04	392.70

Hydraulic Gradient

The hydraulic gradient, *i*, was calculated using the November 2004 regional potentiometric surface in the area of the Site from Weiss Associates (2004).

$$i = \frac{5\,ft}{625\,ft} = \boxed{0.008\ \frac{ft}{ft}}$$

Aquifer Thickness

A uniform aquifer thickness, B, was assumed to be **20 feet**. The interlayered heterogeneities of the A aquifer, observed in the stratigraphy of the pumping wells, are treated as a single unit extending from 10 to 30 feet below ground surface.

Transmissivity

Transmissivity, T, was measured by Bechtel (1996) in monitoring wells NEC-12A, NEC-25A, and NEC-22A.

Well	T (ft^2/day)	Average T in each well
NEC-12A	6.5	6.5
NEC-22A	35	28
	21	
NEC-25A	188	239.5
	291	
	Average T	**91.3 ft^2/day**

[1] Javandel and Tsang (1987). Groundwater, Vol. 25, No. 5. pp. 616-625.

Hydraulic Conductivity

The hydraulic conductivity, K, is calculated from the transmissivity, T, and aquifer thickness as follows:

$$K = \frac{T}{B} = \frac{91.3\, ft^2 / day}{20\, ft} = \boxed{4.6 \text{ ft/day}}$$

The input parameters for the Javandel and Tsang methodology, as well as the numerical model are summarized as follows:

Equation Parameter	NEC27AE	NEC28AE
Q (ft^3/day)	410.02	392.70
B (ft)	20	20
K (ft/day)	4.6	4.6
i (ft/ft)	0.008	0.008
U (ft/day)	0.0368	0.0368

Javandel and Tsang Methodology

From Javandel and Tsang, the stagnation point for each extraction well was calculated using Equation 1

$$X_s = \frac{Q}{2\pi Bu} \qquad (1)$$

where: X_s = stagnation point (ft)
Q = pumping rate (ft^3/day)
B = saturated aquifer thickness (ft)
U = Darcy's velocity (K*i) (ft/day)
K = hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)

Using Equation 1 and the calculated input parameters, the stagnation points for the two wells are:

NEC27AE	NEC28AE
88.72 ft	**84.97 ft**

Capture zones not presented in a figure, but analysis indicates groundwater capture consistent with first and fourth quarters 2010 analyses.

Numerical Simulation of Capture Zone

The 2nd quarter 2010 capture zone at the Site was also estimated using a steady-state numerical stimulation of groundwater flow beneath the Site, incorporating particle tracking. The numerical model consisted of a 2,500 ft wide, by 2,500 ft long model domain, with either 10 ft by 10 ft, 10 ft by 20 ft, or 20 ft by 20 ft grid blocks. Based on an A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day, the numerical simulation of the groundwater potentiometric surface shows complete capture of A aquifer groundwater beneath the Site. The results are presented on Figure 7.

CALCULATIONS FOR CAPTURE ZONE ANALYSIS – 3RD QUARTER 2010

The 3rd quarter 2010 capture zone analysis was conducted using two methodologies; the Javandel and Tsang (1987)[1] methodology, and a site-specific numerical model. Both methodologies require the same input parameters to estimate the capture zones of the groundwater extraction wells. The input parameters used in the numerical model were evaluated during the 4th Quarter 2004 and reflect the current understanding of the Site. Other than the pumping rates of the extraction wells, the input parameters were not reevaluated during this quarter.

Pumping Rate

The average pumping rates during the third quarter of 2010 for the two operating pumping wells at 501 Ellis Street are summarized below.

Well	Q (gpm)	Q (ft^3/day)
NEC27AE	1.99	383.07
NEC28AE	2.03	390.77

Hydraulic Gradient

The hydraulic gradient, *i*, was calculated using the November 2004 regional potentiometric surface in the area of the Site from Weiss Associates (2004).

$$i = \frac{5\,ft}{625\,ft} = \boxed{0.008\ \frac{ft}{ft}}$$

Aquifer Thickness

A uniform aquifer thickness, B, was assumed to be **20 feet**. The interlayered heterogeneities of the A aquifer, observed in the stratigraphy of the pumping wells, are treated as a single unit extending from 10 to 30 feet below ground surface.

Transmissivity

Transmissivity, T, was measured by Bechtel (1996) in monitoring wells NEC-12A, NEC-25A, and NEC-22A.

Well	T (ft^2/day)	Average T in each well
NEC-12A	6.5	6.5
NEC-22A	35	28
	21	
NEC-25A	188	239.5
	291	
	Average T	**91.3 ft^2/day**

[1] Javandel and Tsang (1987). Groundwater, Vol. 25, No. 5. pp. 616-625.

Hydraulic Conductivity

The hydraulic conductivity, K, is calculated from the transmissivity, T, and aquifer thickness as follows:

$$K = \frac{T}{B} = \frac{91.3\,ft^2/day}{20\,ft} = \boxed{4.6\text{ ft/day}}$$

The input parameters for the Javandel and Tsang methodology, as well as the numerical model are summarized as follows:

Equation Parameter	NEC27AE	NEC28AE
Q (ft^3/day)	383.07	390.77
B (ft)	20	20
K (ft/day)	4.6	4.6
i (ft/ft)	0.008	0.008
U (ft/day)	0.0368	0.0368

Javandel and Tsang Methodology

From Javandel and Tsang, the stagnation point for each extraction well was calculated using Equation 1

$$X_s = \frac{Q}{2\pi Bu} \qquad (1)$$

where: X_s = stagnation point (ft)
Q = pumping rate (ft^3/day)
B = saturated aquifer thickness (ft)
U = Darcy's velocity (K*i) (ft/day)
K = hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)

Using Equation 1 and the calculated input parameters, the stagnation points for the two wells are:

NEC27AE	NEC28AE
82.89 ft	**84.86 ft**

Capture zones not presented in a figure, but analysis indicates groundwater capture consistent with first and fourth quarters 2010 analyses.

Numerical Simulation of Capture Zone

The 3rd quarter 2010 capture zone at the Site was also estimated using a steady-state numerical stimulation of groundwater flow beneath the Site, incorporating particle tracking. The numerical model consisted of a 2,500 ft wide, by 2,500 ft long model domain, with either 10 ft by 10 ft, 10 ft by 20 ft, or 20 ft by 20 ft grid blocks. Based on an A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day, the numerical simulation of the groundwater potentiometric surface shows complete capture of A aquifer groundwater beneath the Site. The results are presented on Figure 8.

CALCULATIONS FOR CAPTURE ZONE ANALYSIS – 4TH QUARTER 2010

The 4th quarter 2010 capture zone analysis was conducted using two methodologies; the Javandel and Tsang (1987)[1] methodology, and a site-specific numerical model. Both methodologies require the same input parameters to estimate the capture zones of the groundwater extraction wells. The input parameters used in the numerical model were evaluated during the 4th Quarter 2004 and reflect the current understanding of the Site. Other than the pumping rates of the extraction wells, the input parameters were not reevaluated during this quarter.

Pumping Rate

The average pumping rates during the fourth quarter of 2010 for the two operating pumping wells at 501 Ellis Street are summarized below.

Well	Q (gpm)	Q (ft^3/day)
NEC27AE	1.81	348.42
NEC28AE	1.99	383.07

Hydraulic Gradient

The hydraulic gradient, *i*, was calculated using the November 2004 regional potentiometric surface in the area of the Site from Weiss Associates (2004).

$$i = \frac{5\,ft}{625\,ft} = \boxed{0.008\ \frac{ft}{ft}}$$

Aquifer Thickness

A uniform aquifer thickness, B, was assumed to be **20 feet**. The interlayered heterogeneities of the A aquifer, observed in the stratigraphy of the pumping wells, are treated as a single unit extending from 10 to 30 feet below ground surface.

Transmissivity

Transmissivity, T, was measured by Bechtel (1996) in monitoring wells NEC-12A, NEC-25A, and NEC-22A.

Well	T (ft^2/day)	Average T in each well
NEC-12A	6.5	6.5
NEC-22A	35	28
	21	
NEC-25A	188	239.5
	291	
	Average T	**91.3 ft^2/day**

[1] Javandel and Tsang (1987). Groundwater, Vol. 25, No. 5. pp. 616-625.

Hydraulic Conductivity

The hydraulic conductivity, K, is calculated from the transmissivity, T, and aquifer thickness as follows:

$$K = \frac{T}{B} = \frac{91.3\, ft^2 / day}{20\, ft} = \boxed{4.6 \text{ ft/day}}$$

The input parameters for the Javandel and Tsang methodology, as well as the numerical model are summarized as follows:

Equation Parameter	NEC27AE	NEC28AE
Q (ft^3/day)	348.42	383.07
B (ft)	20	20
K (ft/day)	4.6	4.6
i (ft/ft)	0.008	0.008
U (ft/day)	0.0368	0.0368

Javandel and Tsang Methodology

From Javandel and Tsang, the stagnation point for each extraction well was calculated using Equation 1

$$X_s = \frac{Q}{2\pi Bu} \qquad (1)$$

where: X_s = stagnation point (ft)
Q = pumping rate (ft^3/day)
B = saturated aquifer thickness (ft)
U = Darcy's velocity (K*i) (ft/day)
K = hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)

Using Equation 1 and the calculated input parameters, the stagnation points for the two wells are:

NEC27AE	NEC28AE
75.39 ft	**82.89 ft**

The 4th quarter 2010 capture zones calculated using Javandel and Tsang are shown on Figure 5.

Numerical Simulation of Capture Zone

The 4th quarter 2010 capture zone at the Site was also estimated using a steady-state numerical stimulation of groundwater flow beneath the Site, incorporating particle tracking. The numerical model consisted of a 2,500 ft wide, by 2,500 ft long model domain, with either 10 ft by 10 ft, 10 ft by 20 ft, or 20 ft by 20 ft grid blocks. Based on an A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day, the numerical simulation of the groundwater potentiometric surface shows complete capture of A aquifer groundwater beneath the Site. The results are presented on Figure 9.

APPENDIX C

Laboratory Analytical Reports – December 2010

APPENDIX D

Annual Quality Assurance Report

Table D-1
Comparison of Analytical Laboratory Quality Control Results
2010 Annual Progress Report
501 Ellis Street, Mountain View, California

Method	Date Analyzed	Laboratory Batch Number	Analyte	Accuracy Spike % REC (1)	Accuracy Duplicate % REC (1)	Precision RPD (2)
EPA 8260B Lab Control Spike	12/30/2010	170473	1,1-Dichloroethene	105	NR	NR
			Trichloroethene	99	NR	NR
			Chlorobenzene	102	NR	NR
EPA 8260B Matrix Spike	12/30/2010	170473	1,1-Dichloroethene	110	110	0
			Trichloroethene	96	98	2
			Chlorobenzene	104	103	1
Project Average				**103**	**104**	**1.0**
Project Goals				**40-150**	**40-150**	**<35**

Notes:
1) %REC = Percent recovery
2) RPD = Relative percent difference between the batch spike and batch spike duplicate.
NR = Not Reported

Table D-2
Summary of Blank Sample Results
2010Annual Progress Report
501 Ellis Street, Mountain View, California

Blank Type	Date Sampled	Method	Blank ID	Contaminant	Concentration	Detection Limit
Trip	12/20/2010	EPA 8260B	5160	cis-1,2-Dichloroethene	0.9	0.5-5.0 µg/L
	12/20/2010	EPA 8260B	5160	Trichloroethene	1.8	0.5-5.0 µg/L
Field	12/20/2010	EPA 8260B	5162	--	ND	0.5-5.0 µg/L
Equipment	12/22/2010	EPA 8260B	5163	cis-1,2-Dichloroethene	4.7	0.5-5.0 µg/L
	12/22/2010	EPA 8260B	5163	trans-1,2-Dichloroethene	1.4	0.5-5.0 µg/L
	12/22/2010	EPA 8260B	5163	Trichloroethene	5.4	0.5-5.0 µg/L
	12/22/2010	EPA 8260B	5163	1,1-Dichloroethane	0.5	0.5-5.0 µg/L
	12/22/2010	EPA 8260B	5163	1,1-Dichloroethene	0.7	0.5-5.0 µg/L
	12/22/2010	EPA 8260B	5163	Vinyl chloride	9.7	0.5-5.0 µg/L
Lab Blank	12/15/2010	EPA 8260B	QC572514	--	ND	0.5-5.0 µg/L
	12/28/2010	EPA 8260B	QC574016	--	ND	0.5-5.0 µg/L
	12/29/2010	EPA 8260B	QC574247	--	ND	0.5-5.0 µg/L
	12/30/2010	EPA 8260B	QC574463	--	ND	0.5-5.0 µg/L

Table D-3
Duplicate Quality Control Results
2010 Annual Progress Report
501 Ellis Street, Mountain View, California

Groundwater Monitoring Wells

Sample Date	Contaminant	NECPZ-3A µg/L	NECPZ-3A (Dup) µg/L	RPD[(1)]
12/20/2010	cis-1,2-Dichloroethene	9.9	11	10.5
	trans-1,2-Dichloroethene	1.7	1.8	5.7
	Tetrachloroethene	0.9	0.9	0.0
	Trichloroethene	54	58	7.1
Project Average		--	--	**5.8**
Project Goals		--	--	**<35**

Notes:

1) RPD = relative percent difference = $|X_1-X_2|/X_3 \times 100$
where:
X_1 = concentration of the sample
X_2 = concentration of the duplicate
X_3 = average of X_1 and X_2

APPENDIX E

VOC Concentration
Mann-Kendall Trend Analysis

Table E-1
Mann Kendall Statistical Test Summary Table
501 Ellis Street, Mountain View, CA

Well ID	Trichloroethene		cis-1,2-Dichoroethene		Vinyl Choride	
	80% confidence level	90% confidence level	80% confidence level	90% confidence level	80% confidence level	90% confidence level
NEC1A	No Trend - Stable	No Trend	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NEC7A	Increasing	Increasing	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NEC8A	No Trend - Stable	No Trend	Decreasing	No Trend	No Trend - Stable	No Trend
NEC9A	Decreasing	Decreasing	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NEC10A	Decreasing	Decreasing	Increasing	Increasing	No Trend - Stable	No Trend
NEC11A	Decreasing	Decreasing	Increasing	Increasing	No Trend - Non-Stable	No Trend
NEC12A	No Trend - Stable	No Trend	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NEC20A	Increasing	Increasing	Increasing	No Trend	No Trend - Stable	No Trend
NEC21A	Decreasing	Decreasing	Decreasing	Decreasing	No Trend - Stable	No Trend
NEC22AE	Decreasing	Decreasing	Decreasing	Decreasing	No Trend - Stable	No Trend
NEC23A	Decreasing	Decreasing	Decreasing	Decreasing	No Trend - Stable	No Trend
NEC24A	Decreasing	Decreasing	Increasing	No Trend	No Trend - Stable	No Trend
NEC25A	Decreasing	Decreasing	Decreasing	Decreasing	No Trend - Stable	No Trend
NEC26A	Decreasing	No Trend	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NECPZ1A	Increasing	Increasing	Increasing	No Trend	No Trend - Stable	No Trend
NECPZ2A	Decreasing	Decreasing	Increasing	Increasing	No Trend - Stable	No Trend
NECPZ3A	Decreasing	Decreasing	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NEC1AE	Decreasing	Decreasing	No Trend - Stable	No Trend	No Trend - Stable	No Trend
NEC27AE	No Trend - Stable	No Trend	Decreasing	No Trend	No Trend - Stable	No Trend
NEC28AE	Decreasing	Decreasing	No Trend - Stable	No Trend	No Trend - Stable	No Trend

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.

Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC1A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	59	21	1			
2	25-Nov-02	480	8.5	0.5			
3	7-Nov-03	79	12	0.5			
4	4-Nov-04	350	7	0.6			
5	22-Nov-05	240	6	2.5			
6	27-Nov-06	260	6	2.5			
7	28-Nov-07	64	10	2.5			
8	2-Dec-08	150	9	0.5			
9	18-Dec-09	79	14	0.5			
10	21-Dec-10	83	23	0.5			
	Mann Kendall Statistic (S) =	-6.0	7.0	-4.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	184.40	11.63	1.16	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	144.343	6.045	0.937	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.783	0.520	0.808	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		**CV <= 1 STABLE**	**CV <= 1 STABLE**	**CV <= 1 STABLE**	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC1AE

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	250	30	0.8			
2	25-Nov-02	290	20	1			
3	7-Nov-03	230	18	0.7			
4	4-Nov-04	190	15	1			
5	22-Nov-05	240	17	1			
6	27-Nov-06	260	17	2			
7	28-Nov-07	64	18	1.3			
8	2-Dec-08	160	20	0.5			
9	16-Dec-09	38	22	0.5			
10	13-Dec-10	49	27	0.5			
	Mann Kendall Statistic (S) =	-27.0	8.0	-9.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	177.10	20.40	0.93	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	94.691	4.742	0.462	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.535	0.232	0.497	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC7A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	65	15	0.5			
2	25-Nov-02	58	9.3	0.5			
3	7-Nov-03	41	5.8	0.5			
4	4-Nov-04	46	8	0.5			
5	22-Nov-05	72	13	0.5			
6	27-Nov-06	73	1	0.7			
7	28-Nov-07	72	10	0.5			
8	2-Dec-08	66	10	0.5			
9	21-Dec-09	61	10	0.5			
10	21-Dec-10	75	14	0.5			
	Mann Kendall Statistic (S) =	16.0	6.0	1.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	62.90	9.60	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	11.647	4.128	0.063	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.185	0.430	0.122	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC8A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	31	18	0.5			
2	25-Nov-02	130	12	0.6			
3	7-Nov-03	150	9.4	0.5			
4	4-Nov-04	110	9	0.5			
5	22-Nov-05	120	10	0.5			
6	27-Nov-06	130	9	0.5			
7	28-Nov-07	120	52	0.5			
8	2-Dec-08	120	11	0.5			
9	21-Dec-09	120	9.9	0.5			
10	20-Dec-10	85	6.9	0.5			
	Mann Kendall Statistic (S) =	-6.0	-11.0	-7.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	111.60	14.70	0.51	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	32.729	13.432	0.032	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.293	0.914	0.062	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	**DECREASING**	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		**CV <= 1 STABLE**	NA	**CV <= 1 STABLE**	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC9A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	40	39	0.5			
2	25-Nov-02	54	48	0.5			
3	7-Nov-03	41	58	0.5			
4	4-Nov-04	33	50	0.5			
5	22-Nov-05	28	62	0.5			
6	27-Nov-06	31	6	0.5			
7	28-Nov-07	22	6	0.5			
8	2-Dec-08	22	52	0.5			
9	21-Dec-09	9.3	54	0.5			
10	21-Dec-10	2.7	45	0.5			
	Mann Kendall Statistic (S) =	-38.0	2.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	28.30	42.04	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	15.217	19.948	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.538	0.474	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC10A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	34	5	0.5			
2	25-Nov-02	46	6.4	0.5			
3	6-Nov-03	36	5.1	0.5			
4	5-Nov-04	29	5.7	0.5			
5	22-Nov-05	29	7.1	0.5			
6	21-Nov-06	27	2	0.5			
7	27-Nov-07	27	2	0.5			
8	3-Dec-08	28	8	0.5			
9	18-Dec-09	25	8.9	0.5			
10	21-Dec-10	23	8.6	0.5			
	Mann Kendall Statistic (S) =	-35.0	18.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	30.40	5.98	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	6.703	2.338	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.221	0.391	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC11A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	41	1.7	0.5			
2	25-Nov-02	48	2	0.5			
3	6-Nov-03	38	1.6	0.5			
4	5-Nov-04	34	2	0.5			
5	22-Nov-05	34	3	0.5			
6	27-Nov-06	31	5	5.8			
7	28-Nov-07	26	5	14			
8	3-Dec-08	27	3	0.5			
9	18-Dec-09	26	3	0.5			
10	21-Dec-10	22	3	0.5			
	Mann Kendall Statistic (S) =	-39.0	25.0	5.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	32.70	2.87	2.38	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	7.987	1.354	4.410	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.244	0.472	1.853	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV > 1 NON-STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC12A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	3.7	1.6	2.7			
2	25-Nov-02	6.3	1.9	2			
3	7-Nov-03	10	3.1	6.8			
4	4-Nov-04	17	5	13			
5	22-Nov-05	5.3	3	5.8			
6	27-Nov-06	5.3	1	11			
7	28-Nov-07	12	1	0.5			
8	3-Dec-08	0.8	3	14			
9	22-Dec-09	13	5	11			
10	22-Dec-10	0.6	2	0.5			
	Mann Kendall Statistic (S) =	-4.0	4.0	3.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	7.40	2.50	6.73	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	5.426	1.541	5.225	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.733	0.616	0.776	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC20A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	0.5	0.5	0.5			
2	25-Nov-02	0.5	0.5	0.5			
3	7-Nov-03	0.5	0.5	0.5			
4	4-Nov-04	0.5	0.5	0.5			
5	22-Nov-05	0.5	0.5	0.5			
6	27-Nov-06	13	50	0.5			
7	28-Nov-07	0.8	43	0.5			
8	3-Dec-08	1.2	0.6	0.5			
9	21-Dec-09	0.6	0.5	0.5			
10	22-Dec-10	1.6	0.7	0.5			
	Mann Kendall Statistic (S) =	23.0	14.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	1.97	9.73	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	3.894	19.450	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.976	1.999	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC21A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	68	74	0.5			
2	25-Nov-02	63	70	0.5			
3	7-Nov-03	15	58	0.5			
4	4-Nov-04	21	49	0.5			
5	22-Nov-05	5.3	59	0.5			
6	27-Nov-06	29	41	0.5			
7	28-Nov-07	24	43	0.5			
8	3-Dec-08	4.7	21	0.5			
9	22-Dec-09	5.8	29	0.5			
10	22-Dec-10	5.6	18	0.5			
	Mann Kendall Statistic (S) =	-23.0	-37.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	24.14	46.20	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	23.485	19.475	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.973	0.422	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC22AE

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	75	39	0.5			
2	25-Nov-02	74	39	0.5			
3	7-Nov-03	63	42	0.5			
4	4-Nov-04	32	38	0.5			
5	22-Nov-05	53	43	0.5			
6	27-Nov-06	51	36	0.5			
7	28-Nov-07	47	34	0.5			
8	3-Dec-08	30	24	0.5			
9	22-Dec-09	41	48	0.5			
10	22-Dec-10	20	19	0.5			
	Mann Kendall Statistic (S) =	-35.0	-16.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	48.60	36.20	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	18.482	8.741	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.380	0.241	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC23A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	84	33	0.5			
2	25-Nov-02	110	36	0.5			
3	7-Nov-03	90	35	0.5			
4	4-Nov-04	92	31	0.5			
5	22-Nov-05	95	32	0.5			
6	27-Nov-06	84	36	0.5			
7	28-Nov-07	82	29	0.5			
8	3-Dec-08	92	27	0.5			
9	22-Dec-09	84	34	0.5			
10	22-Dec-10	82	24	0.5			
	Mann Kendall Statistic (S) =	-16.0	-20.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	89.50	31.70	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	8.606	4.001	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.096	0.126	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

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Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC24A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	86	27	0.5			
2	25-Nov-02	99	27	0.5			
3	7-Nov-03	95	29	0.5			
4	4-Nov-04	78	22	0.5			
5	22-Nov-05	91	35	0.5			
6	27-Nov-06	71	13	0.5			
7	28-Nov-07	64	13	0.5			
8	3-Dec-08	52	35	0.5			
9	22-Dec-09	54	45	0.5			
10	22-Dec-10	53	35	0.5			
	Mann Kendall Statistic (S) =	-33.0	12.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	74.30	28.10	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	18.099	10.137	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.244	0.361	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC25A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	78	13	0.5			
2	25-Nov-02	60	14	0.5			
3	7-Nov-03	63	16	0.5			
4	4-Nov-04	60	19	0.5			
5	22-Nov-05	52	11	0.5			
6	27-Nov-06	48	3.6	0.5			
7	28-Nov-07	43	3.4	0.5			
8	3-Dec-08	39	7.4	0.5			
9	22-Dec-09	35	9.9	0.5			
10	22-Dec-10	40	5.7	0.5			
	Mann Kendall Statistic (S) =	-38.0	-19.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	51.80	10.30	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	13.431	5.290	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.259	0.514	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC26A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	170	3.9	0.5			
2	25-Nov-02	180	3.3	0.7			
3	7-Nov-03	160	3.7	0.5			
4	4-Nov-04	100	4	0.5			
5	22-Nov-05	110	3	0.5			
6	27-Nov-06	99	10	0.7			
7	28-Nov-07	99	12	0.5			
8	3-Dec-08	94	3	0.5			
9	22-Dec-09	180	6	0.5			
10	22-Dec-10	130	3	0.5			
	Mann Kendall Statistic (S) =	-15.0	-1.0	-6.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	132.20	5.12	0.54	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	36.469	3.226	0.084	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.276	0.630	0.156	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC27AE

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->	TCE	c,1,2, DCE	VC			
1	26-Nov-01	63	14	0.5			
2	25-Nov-02	90	14	0.5			
3	7-Nov-03	96	13	0.5			
4	4-Nov-04	93	13	0.5			
5	22-Nov-05	240	14	0.5			
6	27-Nov-06	260	23	0.7			
7	28-Nov-07	94	23	0.7			
8	3-Dec-08	100	12	0.5			
9	18-Dec-09	94	10	0.5			
10	20-Dec-10	88	10	0.5			
	Mann Kendall Statistic (S) =	8.0	-15.0	4.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	121.80	14.60	0.54	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	68.474	4.671	0.084	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.562	0.320	0.156	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC28AE

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	25-Nov-02	150	26	0.5			
2	6-Nov-03	120	26	0.5			
3	5-Nov-04	86	26	0.5			
4	22-Nov-05	110	19	0.7			
5	27-Nov-06	94	6.7	0.5			
6	28-Nov-07	85	7.1	0.5			
7	3-Dec-08	95	26	0.5			
8	18-Dec-09	99	26	0.5			
9	20-Dec-10	80	23	0.5			
10							
	Mann Kendall Statistic (S) =	-18.0	-6.0	-2.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	9	9	0	0	0
	Average =	102.11	20.64	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	21.917	8.136	0.067	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.215	0.394	0.128	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NECPZ1A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	1.4	2.9	0.5			
2	25-Nov-02	2.2	3.7	0.5			
3	6-Nov-03	2.3	4.4	0.5			
4	5-Nov-04	4.9	6.5	0.5			
5	22-Nov-05	4.9	9	0.5			
6	27-Nov-06	12	7	0.5			
7	28-Nov-07	20	8	0.7			
8	3-Dec-08	50	7	0.5			
9	21-Dec-09	47	6	0.5			
10	20-Dec-10	51	5	0.5			
	Mann Kendall Statistic (S) =	42.0	15.0	3.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	19.57	5.86	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	21.303	1.812	0.063	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.089	0.309	0.122	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NECPZ2A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	39	10	0.5			
2	25-Nov-02	62	9.6	0.5			
3	6-Nov-03	53	7.4	0.5			
4	5-Nov-04	35	8.5	0.5			
5	22-Nov-05	35	7	0.5			
6	27-Nov-06	21	12	0.5			
7	28-Nov-07	87	12	0.5			
8	3-Dec-08	20	9	0.5			
9	21-Dec-09	24	12	0.5			
10	20-Dec-10	34	13	0.5			
	Mann Kendall Statistic (S) =	-18.0	16.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	41.00	10.07	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	20.966	2.114	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.511	0.210	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

State of Wisconsin
Department of Natural Resources
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NECPZ3A

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->						
1	26-Nov-01	110	11	0.5			
2	25-Nov-02	170	12	0.5			
3	6-Nov-03	130	10	0.5			
4	5-Nov-04	76	11	0.5			
5	22-Nov-05	76	13	0.5			
6	27-Nov-06	95	12	0.5			
7	28-Nov-07	73	11	0.7			
8	3-Dec-08	76	11	0.5			
9	21-Dec-09	66	11	0.5			
10	20-Dec-10	54	10	0.5			
	Mann Kendall Statistic (S) =	-32.0	-10.0	3.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	92.60	11.19	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	35.129	0.934	0.063	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.379	0.083	0.122	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = KF | Date = 1-Mar-11 | Checked By = EJS

APPENDIX F

Wastewater Discharge Permit

CITY OF MOUNTAIN VIEW

Fire Department • Fire and Environmental Protection Division • 500 Castro Street • City Hall - 4th Floor
Mountain View, CA • 94041-2010 • Phone: 650-903-6378 • FAX: 650-962-1430

March 31, 2011

Eric Suchomel-Geosyntec Consultants
501 Ellis Street Groundwater Extraction System
1111 Broadway, 6th Floor
Oakland, CA 94607

Dear Eric Suchomel-Geosyntec Consultants:

Enclosed, please find the following environmental documents for one or more of your facilities in Mountain View:

- ***Updated Environmental Compliance Plan (ECP)***
- ***New Wastewater Discharge Permit***

These are your documents to keep at your facility. Do not return them to us!! To avoid confusion, please discard all old documents and replace them with these current documents.

As a reminder, you should update your Environmental Compliance Plan (ECP) whenever changes occur in this information. Your ECP should always be up-to-date and available at your facility to show any inspector. If you need to update any information, simply make the corrections on the applicable documents in red, keep a copy of those corrections, and mail the updated documents to our office.

If you have any questions regarding your ECP or any of your permits, feel free to contact us at the above number. Thank you for your cooperation in providing us with accurate and up-to-date information so that we may improve our emergency response capabilities should you ever have need of them.

Sincerely,
Jaymae Wentker

Jaymae Wentker
Fire Marshal

Recycled Paper

CITY OF MOUNTAIN VIEW
FIRE AND ENVIRONMENTAL SAFETY DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View, CA 94041-2010 • 650-903-6378

WASTEWATER DISCHARGE PERMIT

THE FIRM OR CORPORATION NAMED HEREIN IS AUTHORIZED TO DISCHARGE REGULATED WASTEWATER INTO THE SANITARY SEWER IN ACCORDANCE WITH ALL CONDITIONS IN THIS PERMIT AND CHAPTER 35 OF THE MOUNTAIN VIEW CITY CODE.

Permitted **501 Ellis Street Groundwater Extraction System**
Facility **501 Ellis Street**

501 Ellis Street Groundwater Extraction System
1111 Broadway, 6th Floor
Oakland, CA 94607
Attn: Eric Suchomel-Geosyntec Consultants

Date Issued: **3/31/2011**
Date Revised:
Date Expires: **5/1/2012**
Permit ID: **925**

Jaymae Wentker
Jaymae Wentker, Fire Marshal

EPA Category/Subcategory:
Reference:

POST IN A CONSPICUOUS PLACE AT THE "PERMITTED FACILITY" SITE

I. Discharge Limitations:

Process Discharge (industrial waste) shall not exceed 9,560 Gallons Per Day (GPD).
(Location A1: 9560 GPD)
Total Discharge (industrial and domestic waste) shall not exceed 9,560 Gallons Per Day (GPD).

II. Special Conditions/Requirements:

1 Discharge quantity shall not exceed 9,560 gpd.
2 STO/TTO samples shall be analyzed using EPA method 601/602 or 624 (see section XIII).
3 Sample results shall be submitted to the City upon receipt.

III. Self-Monitoring Sampling Analysis:

Pollutant	Sampling Frequency	Sample Type	Sampling Location(s)*	Federal Maximum for any 1 day (mg/L)	Federal Avg. of daily values for 30 consec.days (mg/L)	Local Limit (mg/L)
Single Toxic Organic	Quarterly	Grab	A1	NA	NA	.75
Total Dissolved Solids	Quarterly	Grab	A1	No Limit	No Limit	10000
Total Toxic Organics	Quarterly	Grab	A1	NA	NA	1

*Sampling Location A1 is in the northwest corner of the treatment pad.

IX. *Record-Keeping Requirements:* (40 CFR 403.12(o))

All Industrial Users shall maintain records for all information resulting from any monitoring activities conducted. Such records shall nclude for all samples:

1) The date, exact place, method, and time of sampling and the names of the peron or persons taking the samples;
2) The dates analyses were performed;
3) Who performed the analyses;
4) The analytical techniques/methods used; and
5) The results of such analysis.

All Industrial Users shall maintain for a minimum of 3 years any records of monitoring activities and results, and shall make such records ıvailable for inspection and copying by the City of Mountain View and Palo Alto Water Quality Control Plant. This period of retention shall be xtended during the course of any unresolved litigation regarding the discharge of pollutants by the Industrial User or the operation of he POTW Pretreatment Program or when requested by the Director or the Regional Administrator.

X. *Notification of Changed Discharge:* (40 CFR 403.12(j))

All Industrial Users shall promptly notify the City of Mountain View at 650-903-6378 and the Palo Alto Water Quality Control Plant t 650-329-2598 in advance of any substantial change in the volume or character of pollutants in their discharge, including the haracteristic hazardous wastes for which the Industrial User has submitted initial notification under 40 CFR 403.12(p).

XI. *Notification of Bypass:* (40 CFR 403.17(c)(2))

All Industrial Users shall verbally notify the City of Mountain View at 650-903-6378 and Palo Alto Water Quality Control Plant t 650-329-2598 of an unanticipated bypass (intentional diversion of its wastestream from the treatment facility) within 24 hours from the ime the Industrial User becomes aware of the bypass. A written submission shall also be provided within 5 days of the time the Industrial Jser becomes aware of the bypass. The written submission shall contain a description of the bypass and its cause; the duration of the bypass, ıcluding exact dates and times, and, if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or lanned to reduce, eliminate, and prevent reoccurrence of the bypass.

XII. *Transferability of Permit:* (MVCC 35.32.2.4)

This permit is not transferable without prior written notification to and approval by the City and the assumption of all ermit conditions by the new owner/operator.

XIII. *Definition of Total Toxic Organics:* (40 CFR 469.12)

The term "total toxic organics" (TTO) means the sum of the concentrations for each of the following toxic organic components found ı the discharge at a concentration greater than ten (10) micrograms per liter. The facility's local TTO and STO limits apply to all of ıe compounds listed below. Those compounds analyzed using EPA Method 601/602 or 624 are identified by a "▤".

]Acenaphthene	▤2-Chlorophenol	▤Methyl bromide	▤Diethyl phthalate	▤4,4-DDT
]Acrolein	▤1,2-Dichlorobenzene	▤Bromoform	▤Dimethyl phthalate	▤4,4-DDE
]Acrylonitrile	▤1,3-Dichlorobenzene	▤Dichlorobromomethane	▤1,2-Benzanthracene	▤4,4-DDD
]Benzene	▤1,4-Dichlorobenzene	▤Chlorodibromomethane	▤Benzo(a)pyrene	▤Alpha-endosulfan
]Benzidine	▤3,3-Dichlorobenzidine	▤Hexachlorobutadiene	▤3,4-Benzofluoranthene	▤Beta-endosulfan
]Carbon tetrachloride	▤1,1-Dichloroethylene	▤Hexchlorocyclopentadiene	▤11,12-Benzofluoranthene	▤Endosulfan sulfate
]Chlorobenzene	▤1,2-Trans-dichloroethylene	▤Isophorone	▤Chrysene	▤Endrin
]1,2,4-Trichlorobenzene	▤2,4-Dichlorophenol	▤Naphthalene	▤Acenaphthylene	▤Endrin aldehyde
]Hexachlorobenzene	▤1,2-Dichloropropane	▤Nitrobenzene	▤Anthracene	▤Heptachlor
1,2-Dichloroethane	▤1,3-Dichloropropylene	▤2-Nitrophenol	▤1,12-Benzoperylene	▤Heptachlor epoxide
1,1,1-Trichloroethane	▤2,4-Dimethylphenol	▤4-Nitrophenol	▤Fluorene	▤Alpha-BHC
Hexachloroethane	▤2,4-Dinitrotoluene	▤2,4-Dinitrophenol	▤Phenanthrene	▤Beta-BHC
1,1-Dichloroethane	▤2,6-Dinitrotoluene	▤4,6-Dinitro-o-cresol	▤1,2,5,6-Dibenzanthracene	▤Gamma-BHC
1,1,2-Trichloroethane	▤1,2-Diphenylhydrazine	▤N-nitrosodimethylamine	▤Indeno(1,2,3-cd) pyrene	▤Delta-BHC
1,1,2,2-Tetrachloroethane	▤Ethylbenzene	▤N-nitrosodiphenylamine	▤Pyrene	▤PCB-1242
Chloroethane	▤Fluoranthene	▤N-nitrosodi-n-propylamine	▤Tetrachloroethylene	▤PCB-1254
Bis(2-chloroethyl) ether	▤4-Chlorophenyl phenyl ether	▤Pentachlorophenol	▤Toluene	▤PCB-1221
2-Chloroethyl vinyl ether	▤4-Bromophenyl phenyl ether	▤Phenol	▤Trichlroethylene	▤PCB-1232
2-Chloronaphthalene	▤Bis(2-chloroisopropyl)ether	▤Bis(2-ethylhexyl)phthalate	▤Vinyl chloride	▤PCB-1248
2,4,6-Trichlorophenol	▤Bis(2-chloroethoxy)methane	▤Butyl benzyl phthalate	▤Aldrin	▤PCB-1260
Parachlormeta cresol	▤Methylene chloride	▤Di-n-butyl phthalate	▤Dieldrin	▤Toxaphene
Chloroform	▤Methyl chloride	▤Di-n-octyl phthalate	▤Chlordane	▤TCDD

CITY OF MOUNTAIN VIEW
FIRE AND ENVIRONMENTAL SAFETY DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View, CA 94041-2010 • 650-903-6378

ENVIRONMENTAL COMPLIANCE PLAN
Business Activities

Facility ID:	925
Updated:	3/31/2011

Business Name
501 Ellis Street Groundwater Extraction System

Facility Street Address
501 Ellis Street

I. FACILITY IDENTIFICATION

State Facility ID #	43-005-000925	EPA ID # (Hazardous Waste Only)	CAD980883268

II. ACTIVITIES DECLARATION

NOTE: If you check YES to any part of this list, please submit the Business Owner/Operator Identification page.

Does your facility...		If Yes, please complete these pages of the UPCF...
A. HAZARDOUS MATERIALS Have on site (for any purpose) at any one time, hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	☐ Yes ☒ No	HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION
B. CalAPR REGULATED SUBSTANCES Have Regulated Substances stored onsite in quantities greater than the threshold quantities established by the California Accidental Release prevention Program (CalARP)?	☐ Yes ☒ No	Coordinate with your local agency responsible for CalARP.
C. UNDERGROUND STORAGE TANKS (USTs) Own or operate underground storage tanks?	☐ Yes ☒ No	UST FACILITY (Formerly SWRCB Form A) UST TANK (one page per tank) (Formerly Form B)
D. ABOVE GROUND PETROLEUM STORAGE Own or operate ASTs above these thresholds: Store greater than 1,320 gallons of petroleum products (new or used) in aboveground tanks or containers.	☐ Yes ☒ No	NO FORM REQUIRED TO CUPAs
E. HAZARDOUS WASTE Generate hazardous waste?	☐ Yes ☒ No	EPA ID NUMBER – provide at the top of this page
Recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)?	☐ Yes ☒ No	RECYCLABLE MATERIALS REPORT (one per recycler)
Treat hazardous waste on-site?	☐ Yes ☒ No	ON-SITE HAZARDOUS WASTE TREATMENT – FACILITY ON-SITE HAZARDOUS WASTE TREATMENT – UNIT (one page per unit)
Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	☐ Yes ☒ No	CERTIFICATION OF FINANCIAL ASSURANCE
Consolidate hazardous waste generated at a remote site?	☐ Yes ☒ No	REMOTE WASTE / CONSOLIDATION SITE ANNUAL NOTIFICATION
Need to report the closure/removal of a tank that was classified as hazardous waste and cleaned on-site?	☐ Yes ☒ No	HAZARDOUS WASTE TANK CLOSURE CERTIFICATION
Generate in any single calendar month 1,000 kilograms (kg) (2,200 pounds) or more of federal RCRA hazardous waste, or generate in any single calendar month, or accumulate at any time, 1 kg (2.2 pounds) of RCRA acute hazardous waste; or generate or accumulate at any time more than 100 kg (220 pounds) of spill cleanup materials contaminated with RCRA acute hazardous waste.	☐ Yes ☒ No	Obtain federal EPA ID Number, file Biennial Report (EPA Form 8700-13A/B), and satisfy requirements for RCRA Large Quantity Generator.
Household Hazardous Waste (HHW) Collection site?	☐ Yes ☒ No	See CUPA for required forms.
F. LOCAL REQUIREMENTS Store or use hazardous materials exceeding the exempt amounts in Chapter 24, MVCC, or have permitted waste water discharge?	☒ Yes ☐ No	COMPLETE ENVIRONMENTAL COMPLIANCE PLAN (ECP)

CITY OF MOUNTAIN VIEW
FIRE AND ENVIRONMENTAL SAFETY DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View, CA 94041-2010 • 650-903-6378

ENVIRONMENTAL COMPLIANCE PLAN
Business Owner/Operator Identification

Facility ID:	**925**
Updated:	**3/31/2011**

I. IDENTIFICATION			
State Facility ID # **43-005-000925**	Beginning Date **Refer to Permit**	Ending Date **Refer to Permit**	
Business Name **501 Ellis Street Groundwater Extraction System**	Business Phone		
Business Site Address **501 Ellis Street**			
City **Mountain View**	State **CA**	Zip **94043**	County **Santa Clara**
Dunn & Bradstreet No.	SIC Code		
Business Operator Name **Locus Technologies**	Business Operator Phone **650-960-1640**		
II. BUSINESS OWNER			
Owner Name **Renesas Electronics America-Harry**	Owner Phone **408-588-6000 x6157**		
Owner Mailing Address **2880 Scott Blvd**			
City **Santa Clara**	State **CA**	Zip **95050**	
III. ENVIRONMENTAL CONTACT			
Contact Name **Eric Suchomel-Geosyntec Consultants**	Contact Phone **510-285-2786**		
Contact Mailing Address **1111 Broadway, 6th Floor**			
City **Oakland**	State **CA**	Zip **94607**	

-PRIMARY- IV. EMERGENCY CONTACTS	-SECONDARY-
Name **Tom Murphy-Locus Technologies**	Name **Eric Suchomel-Geosyntec Consultants**
Title **Engineering Technician**	Title **Engineer**
Business Phone **408-592-7955**	Business Phone **510-285-2786**
24 Hr Phone **408-592-7955**	24 Hr Phone **678-984-2337**
Pager #	Pager #

V. ADDITIONAL LOCALLY COLLECTED INFORMATION		
EPA ID **CAD980883268**	Primary Bus Activity **Groundwater Extraction System**	
Property Owner **Renault and Handley**	Phone **650-321-3040**	
Shift Times: 1st to	2nd to	3rd to
# of Employees/Shift		

Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

Signature of Owner/Operator	**Date**	**Name of Document Preparer**

Name of Signer (print)	**Title of Signer**

CITY OF MOUNTAIN VIEW
FIRE AND ENVIRONMENTAL SAFETY DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View, CA 94041-2010 • 650-903-6378

ENVIRONMENTAL COMPLIANCE PLAN
Wastewater Process Discharge

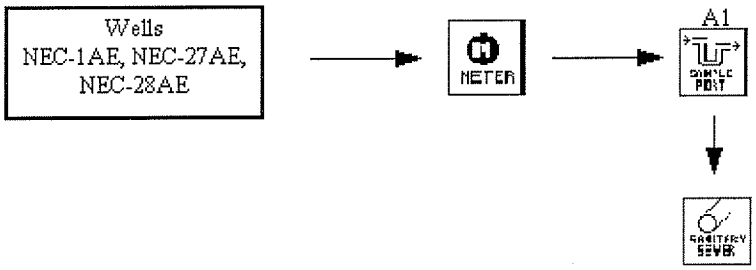
Facility ID:	925
Updated:	3/31/2011

Business Name
501 Ellis Street Groundwater Extraction System

Facility Street Address
501 Ellis Street

Discharge Activity Name: Groundwater Extraction Wells **Activity** 1 **of** 1

Discharge Source (Map Location): Wells NEC-1AE, NEC-27AE, NEC-28AE **RCMs Required?** No



Sanitary Sewer Discharge Data:

Average Daily Flow: 7,460 **GPD** **Maximum Daily Flow:** 9,560 **GPD** **Sample Port:** A1

REASONABLE CONTROL MEASURES (RCMs)

This section does NOT APPLY to this wastewater process discharge.

Control of Bath Make-Up

	Select Best Bath Chemistry
	Use Standard Recipes
	Use De-Ionized Water

Extension of Bath Life

	Bath Purification
	High Purity Anodes
	Change Bath by Analysis
	Purifiable Bath Chemistry

Pretreatment of Spent Baths

	Electrowin Spent Baths, or
	Batch Treat Spent Bath

Minimization of Drag-In

	Efficient Pre-Cleaning of Parts
	Use Coated Racks
	Optimization of Prior Processes
	Use Drag-In/Drag-Out Sequence

Flow Control

	Conductivity Controller, or
	Flow Timer, or
	Contact Switch

Countercurrent Rinsing

	Separate Tank, or
	Divide Existing Tank, or
	Spray Over Existing Tank

Minimization of Drag-Out

	Static Drag-Out Tank
	Spray Rinse, or
	Squeege, or
	Air Knives
	Drain Boards
	Splash Guard
	Drip Bar, or
	Increased Dwell Time
	Recapture Drag Out

Substitutes/Comments

CITY OF MOUNTAIN VIEW
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ENVIRONMENTAL COMPLIANCE PLAN
Facility Maps

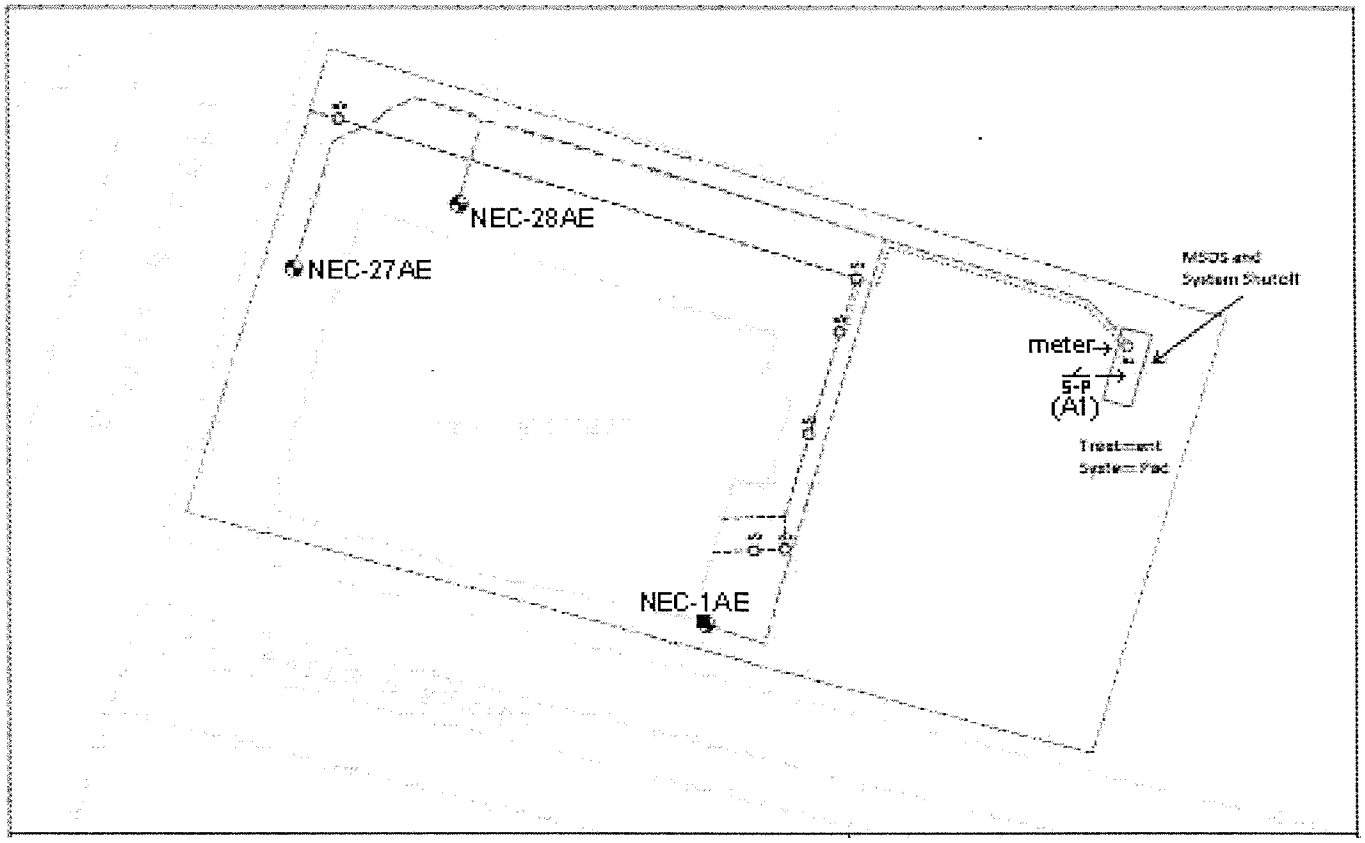
Facility ID:	925
Updated:	3/31/2011

Business Name
501 Ellis Street Groundwater Extraction System

Facility Street Address
501 Ellis Street

Scale No Scale **Map Title** 501 Ellis Street Groundwater Extraction System, 501 Ellis Street **Map** 1 **of** 1

Legend
Bold Text=Hazmat Locations
=Utility Shutoffs
=Gas Pump Shutoff
=Lock Box (Knox Box)
=MSDS Location
=On-Site Connection
=Riser
=Inspector Test Port
=Post Indicator Valve
=Wall Indicator Valve
=Fire Dept. Connection
=Outside Stem & Yoke
=Water Tank
= On-Site Hydrant
TMP = UST Monitoring Panel
= Sanitary Sewer
=Storm Drain
=Wastewater Line
=Clean Out
=Sample Port



Historical Data Included on CD
(EPA Only)